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FAMILY TUBERCULOSIS DUE TO BOVINE TUBERCLE BACILLI

BY

A. STANLEY GRIFFITH, M.D.VICT., PHD.CAMB.

MEMBER OF THE SCIENTIFIC STAFF, MEDICAL RESEARCH COUNCIL

AND

W. T. MUNRO, M.D.ST.AND., F.R.C.P.ED.

MEDICAL SUPERINTENDENT, GLENLOMOND SANATORIUM

Although by the end of 1933 nearly eighty cases of bovine phthisis pulmonalis had been discovered in Great Britain no evidence had been obtained of transmission of the bovine bacilli from one human being to another. It was, indeed, seldom possible to elicit a history of clinical tuberculosis in another member of the household in which a bovine case had occurred.

In 1934 Walker[1] reviewed the recorded instances where in a household containing one case of bovine phthisis one or more of the other members of the family suffered from tuberculosis, and reported in detail the bacteriological findings in two families each with two cases of pulmonary tuberculosis. In one family a girl of 20 was found (at Glenlomond Sanatorium) to be expectorating bovine tubercle bacilli with the sputum. Her mother also suffered from pulmonary tuberculosis, and her sputum, which was examined bacteriologically at Cambridge and Glenlomond, yielded cultures of the human type. In the second family there were two brothers, both of whom suffered from phthisis pulmonalis. Dr. W. M. Cumming, having shown that one brother, a man aged 48, was discharging bovine tubercle bacilli with the sputum, examined the sputum of the other, a man of 60. The sputum of the latter yielded typical eugonic human cultures. In four other instances two or more members of a family containing a case of bovine phthisis suffered from tuberculosis, but in none of these cases was material from the other members available for examination.

Thus bacteriological evidence was lacking of the occurrence in a household of a case of bovine tuberculosis in association with a case of bovine phthisis. We do not mean to imply that bovine infection has never been demonstrated in more than one member of the same family. One of us (A. S. G.) has reported the four following instances of such occurrence, but in all of these the cases of tuberculosis were non-pulmonary.

In one family twin boys both developed lupus vulgaris at the age of 3 years. When they were 10 years old lupous tissue was excised for bacteriological investigation, and bovine tubercle bacilli were cultivated from the lesions in each case. The boys were breast-fed, and were afterwards given cows' milk unboiled. The parents were healthy, and there is little doubt that in this instance the source of the bovine bacilli was the cows' milk.

In the second family a brother, aged 10, and a sister, aged 16, both had lupus, which in the boy was limited to the chest and in the girl was generalized and associated with scrofulodermia and tuberculosis of the spine, elbows, and fingers. From each child bovine bacilli were cultivated, which in the case of the boy were fully virulent and in that of the girl were definitely attenuated, though in cultural characteristics they were identical.

In the third family there were two sisters, aged 16 and 8 years respectively, with glandular abscesses in the neck, which the elder girl, who also showed keloid scars from old lupus, had had for seven years and the younger for thirteen months. Fully virulent bovine tubercle bacilli were cultivated in each case from abscess pus, the interval between the two investigations being ten months. These children were evidently infected at different times, and it is possible that the younger child might have been infected by the older.

In the fourth family there were three sisters, aged 8, 15, and 17 years, who had suffered from tuberculosis for seven, five, and eight years respectively. Each girl had multiple scrofulodermic abscesses (neck or arms) and a thickened, scaly lupoid condition of the hands or fingers. In addition, the youngest girl suffered from peritoneal tuberculosis; the second girl had had an excision of cervical glands two years previously, and the third had had some knee-bone tuberculosis, which was cured. Bovine tubercle bacilli were obtained in culture from each girl, four strains from the youngest (two scrofulodermic abscesses, lupoid skin, and a peritoneal nodule) and one each from scrofulodermic abscesses in the two older girls. The strains from the two older girls and those from the skin and peritoneum of the youngest were attenuated, while the two abscess strains of the last were fully virulent.

We are now, as a result of the investigations of 1934, able to give details of two families, each of which contained two cases of phthisis pulmonalis in adults and one, in addition, a case of glandular tuberculosis in a child, all due to tubercle bacilli of the bovine type.

Family A

In April, 1934, when discussing together the absence of proof of transmission of bovine tubercle bacilli by human beings, Dr. C. C. Finlator, medical officer of health for the county of Clackmannan, informed us that he had under his care a brother and sister with phthisis pulmonalis whose mother had been a milker and was afterwards notified as a case of pulmonary tuberculosis. We agreed that a bacteriological examination of these cases should be made, and Dr. Finlator, to whom we are also indebted for the clinical particulars of the cases, kindly undertook to collect specimens of sputum and to forward them to Cambridge for investigation. Specimens were obtained from the brother and the sister, and both, to our surprise, were found to contain tubercle bacilli of the bovine type only. Unfortunately, no material was available from the mother, who at this time was well, without cough or sputum, and had been doing work on a farm for some years. She was born in February, 1887, and married in 1903. She had ten children, the first in 1904, the last in 1924, and was notified as a case of tuberculosis in June, 1916, a month after the birth of her seventh child. Her illness began with cough and loss of strength and weight; she also had slight breathlessness and night

sweats. On examination both upper lobes were found to be involved. She was treated at home, where she occupied a separate room, and gradually improved, though for some time there was considerable sputum. The sputum was examined microscopically several times during Dr. Finlator's absence on war service, when the illness occurred, but tubercle bacilli were not found. Of the ten children one died in early infancy from general weakness; six are healthy; one, a girl aged 13, in 1932 had pleurisy with effusion at the right base and a small patch of infiltration at the right apex, which cleared up in 1933, and she is now well and working. The two remaining children—the brother and sister previously mentioned—developed pulmonary tuberculosis, and were the subjects of bacteriological investigation. There was no history of tuberculosis in the father, who died in 1927 from shock following a bicycle accident.

The *son* was born in July, 1905, and was healthy until he attained the age of 26½ years, when he had an illness which began with pain in the right side, followed by cough and progressive loss of weight. Three months later (February, 1931) he was notified as a case of pulmonary tuberculosis. Examination then showed defective expansion of both sides of the chest, slight dullness and coarse friction at the right base, and a few fine crepitations, with some bronchial breathing in the left upper lobe just below the clavicle; there was no sign of cavity formation. He did well in the local tuberculosis hospital during his stay from February 26th to July 3rd, 1931; physical signs and symptoms subsided, and he gained 25½ lb. in weight. From the hospital he was transferred to a sanatorium, where he stayed two months, leaving of his own accord. He had then very little sputum, containing a few tubercle bacilli. The lungs were dry, but there was slightly increased vocal resonance over the right upper lobe and some bronchial breathing over both upper lobes. He returned to farm work, and Dr. Finlator did not see him again until March, 1934, when he had a relapse, the condition of the lung, especially on the right side, being very similar to that in his first acute phase. He was admitted to the local hospital in March, 1934, and was discharged in September, 1934, fit for light work. The physical signs had subsided again, and his general condition was fairly good. Sputum was scanty, but still positive. In January, 1935, his condition was fairly good, and nutrition and capacity for exercise were better than they had been for some time. Moist sounds in the lungs were few, but the sputum still contained tubercle bacilli. He was particularly fond of milk, but has had no glandular swellings in the neck. He is not married.

BACTERIOLOGICAL INVESTIGATION

Specimens of sputum were received at Cambridge on May 17th and July 6th, 1934, and January 19th, 1935. Microscopically tubercle bacilli were scanty in the first, fairly numerous in the second, and not found in the third specimen; the bacilli were short and rather plump. Cultures of tubercle bacilli were obtained directly from each specimen, the colonies being in moderate number from the first, numerous from the second, and sparse from the third. The primary colonies and the subcultures of each strain were typically bovine. The first strain was inoculated subcutaneously (dose rather less than 4 mg.), the second and third intravenously (doses 0.01 mg.), each into one rabbit. The rabbits died of typical general miliary tuberculosis in forty-one, thirty-one, and twenty-six days respectively.

The *daughter* was born in May, 1907, and after leaving school worked in a paper-mill until she married at the age of 18. She had never milked cows, was not particularly fond of milk, and had not had enlarged neck glands. There were five children—one girl and four boys—the ages of whom (in 1934) ranged from 10 to 2½ years. They have been recently (in 1935) examined by Dr. Finlator, who reports that they are all in excellent health. The husband, aged 31, is a well-nourished man of good physique. He also has been examined by Dr. Finlator and shows no physical signs of tuberculosis in the lungs, abdomen, or glands, and has no sputum. The woman was quite healthy up to November, 1933, when she started a cough, which persisted. By February she had begun to lose weight and to perspire freely at night. Sputum was copious. She became progressively worse, and was admitted to hospital in May, 1934, in a grave condition. On admission there was clinical evidence of cavity formation at the right apex, and after a few weeks in hospital signs of gross cavity formation became evident on the left side also. The sputum was all the time very copious and purulent. She had attacks of diarrhoea at the onset of her illness and also in hospital, where she died in July, 1934.

NECROPSY

This was made by Dr. M. S. Stevenson, medical superintendent, Clackmannanshire Combination Infectious Diseases Hospital, to whom we are much indebted for specimens and notes of the post-mortem findings. The parietal and visceral pleurae were largely adherent. Most of the left lung from the apex downwards was completely destroyed and converted into a sac filled with purulent fluid; the lower part of this lung was infiltrated and so friable that it came away in shreds when an attempt was made to remove it. The upper lobe of the right lung was also destroyed and converted into a bag of pus; the lower lobe, of which portions were sent to Cambridge, showed caseating pneumonic patches (t.b.++), containing small cavities; another portion was crepitant. The right tracheo-bronchial glands (sent to Cambridge) were very anthracotic, not obviously enlarged, and without caseation or calcification. The left tracheo-bronchial glands were not distinguishable at the necropsy, owing to the complete destruction of the left lung.

The mesenteric glands (sent to Cambridge) contained three completely calcified nodules—the largest 10 mm., the smallest 2 to 3 mm., in diameter. The stomach and intestines showed no abnormality. Liver and spleen slightly enlarged, no tubercles seen. Heart small and anaemic; pericardium filled with serous fluid.

BACTERIOLOGICAL INVESTIGATION

Specimens of muco-purulent sputum (t.b.++) were received on May 17th and June 23rd, 1934. The bacilli were mostly short, some uniformly stained, some beaded. Pure cultures of bovine tubercle bacilli were obtained directly from each specimen. Cultures of tubercle bacilli identical with the sputum strains were also obtained directly from the lung and through the guinea-pig from the right tracheo-bronchial gland of the woman. (No tubercle bacilli were demonstrated in a calcareous nodule from a mesenteric gland, an emulsion of which did not produce tuberculosis in a guinea-pig.) The virulence of each of the four strains of culture was tested on the rabbit, the first strain by subcutaneous inoculation (dose 2 mg.), the other three by intravenous inoculation (doses 0.01 mg.). The four rabbits died of general tuberculosis in seventy-one, thirteen, twenty-two, and thirty-one days respectively.

Family B

In this family three persons—a man, his wife, and a child—were examined bacteriologically. The woman was the first to come under our observation—in July, 1933—when she was admitted to Glenlomond Sanatorium. On admission she was very ill, with severe cough, abundant sputum, and considerable systemic disturbance. She was thin—weight only 5 st. 7½ lb.—very pale, and somewhat dyspnoeic. Examination of the chest revealed extensive disease of both lungs, with more moist sounds on the left than on the right side. Chains of shotty glands were palpable in the posterior triangles of the neck. The larynx was involved, but there were no signs or symptoms of intestinal disease, and no tubercle bacilli were found in the urine. The sputum was laden with tubercle bacilli, which, for the most part, were long, curved, and beaded. It

was therefore remarkable to find that the bacilli in culture had the characters of dysgonic bovine tubercle bacilli, and, furthermore, fell below the standard of bovine viruses in virulence. The patient improved with rest, and left at her own request in June, 1934, with little change in the physical state, but with less systemic disturbance.

When it was established that the bacilli present in the sputum of the woman were identical culturally with bovine bacilli the importance was seen of examining the other members of the family, some of whom were known to be tuberculous.

The husband, who was then living in Fifeshire, sent specimens of his sputum to Glenlomond and to Cambridge for examination. The sputum contained numerous tubercle bacilli, which, as in the first case, were mainly long and beaded. Cultures of the bacilli were obtained, and, most surprisingly, proved to be dysgonic and identical with the wife's strain, alike in cultural characters and in having lower virulence than standard bovine strains.

The children, of whom there were three, were then examined clinically, having been admitted to Glenlomond Sanatorium for the purpose. They all reacted to the intradermal tuberculin test. A gastric lavage was done in each case and the deposits were inoculated into guinea-pigs. A positive result was obtained in one case and a culture from the tuberculous lesions of the guinea-pig proved dysgonic and highly virulent for the rabbit.

The question then arose as to the relation of the three strains of bacilli one to the others, and in order to elucidate this point it was necessary to go very thoroughly into the personal and family histories of the parents. We are much indebted to Dr. W. A. Muir, medical officer of health, Gillingham, Kent, for verifying and amplifying the details of history given to us by the wife (Mrs. T.).

She was born in 1904, in a rural part of Kent, and was breast-fed for about nine months and then afterwards was fed on cows' milk, which was not always boiled. At the age of 4 she had measles, followed by bronchitis and pleurisy, with effusion, and thereafter she was always "bronchial." She attended school, however, fairly regularly, and had only one long absence, at about the age of 10, when she was in bed for a month with fever and cough and was a month in convalescence. When aged 16 or 17 she was anaemic and had a cough, and, according to her statement, which could not be verified, visited the tuberculosis dispensary regularly with a sister, but apparently no definite diagnosis of tuberculosis was made, or, at least, the case was not notified. She married in 1923, at the age of 18, and has three children, aged 10, 8, and 6, the youngest born in 1927. After the birth of the third child she never felt well, and in 1929 was diagnosed as suffering from pulmonary tuberculosis. In 1930 she was admitted to a sanatorium in Kent, but left of her own accord. The sister, previously mentioned, now 26 years of age, was notified as suffering from pulmonary tuberculosis in October, 1922. Her illness followed influenza with chest complications in 1918. According to the local tuberculosis register her disease was quiescent in 1925 and cured in 1927. Dr. Muir saw her in January, 1935; she was feeling very well and looked healthy, though thin.

The husband was born at Methil, Fife, in 1896. His father died of cerebral haemorrhage. His mother died in 1924, and a sister died in 1914, both of pulmonary tuberculosis. These deaths occurred at home, and have been verified by reference to the records of the Tuberculosis Service, Fife County. Mr. T. was healthy as a schoolboy. He joined the Army in 1915 and was fit for service until 1918, when he contracted malaria in Salonica, and at the same time began to cough. He left the service, but rejoined in 1922, and in 1925 was not allowed to proceed to India on account of coughing. He stated that he had a cough when he married in 1923. He was first recognized as suffering from pulmonary tuberculosis in 1929, when he was discharged from the Army. Between 1925 and 1929 he was continually reporting sick.

Afterwards he lived with his family in Gillingham, and in 1930 while his wife was in one sanatorium he was in another. As the husband's home county was Fife the local authority arranged the transfer of the whole family to the county of Fife. Here he was visited by one of us (W. T. M.) and found to have extensive bilateral pulmonary tuberculosis with abundant sputum, which, as already stated, contained tubercle bacilli of the bovine type culturally, but atypical in virulence.

The child from whose gastric lavage the virulent bovine culture was obtained was the youngest of the three, aged 6 years. Tiny glands could be felt in his posterior triangles, and palpation of the abdomen gave the sensation of enlarged mesenteric glands. The spleen was not enlarged. There was a little cough, also slight systemic disturbance, and an *x*-ray film showed definite root infiltration on both sides.

The eldest child, a girl of 10, had small cervical glandular enlargements, and reacted positively to tuberculin, but showed no other evidence of tuberculous disease.

The remaining child, a girl of 8, was thin and showed slight enlargements of cervical glands, especially in the posterior triangles. The lungs gave an impaired note at left root, and an *x*-ray film suggested root infiltration. The reaction to tuberculin was pronounced. Gastric lavage was done on three occasions and the deposits tested on guinea-pigs for tubercle bacilli with negative results. All the children improved in the sanatorium and are now in good health.

BACTERIOLOGICAL INVESTIGATIONS

These have been extensive, and in this paper only a summary can be given. Five specimens of sputum from Mrs. T. and three from Mr. T. have been examined. Microscopically tubercle bacilli were numerous, and, as already stated, were beaded and vacuolated, and for the most part fairly long. A culture was obtained directly from each specimen, and the eight strains were found to be identical culturally one with another and with those bovine tubercle bacilli which grow with most difficulty on glycerin media (bovine Class I).

The virulence of the strains was tested by the inoculation of cultures into three young goats, fifteen rabbits, and fourteen guinea-pigs. The goats were inoculated intramuscularly, two with a strain from Mrs. T. (doses 10 and 20 mg.) and one with a strain from Mr. T. (dose 10 mg.). They were killed 147, 153, and 153 days after injection respectively, and each showed caseo-calcareous retrogressive tuberculosis at the seats of injection and adjacent prescapular glands and a few minute calcareous foci in the mediastinal glands; in addition, the lungs of one of the goats contained a moderate number of miliary tubercles. Only in the last goat were the disseminated lesions definitely more extensive than those which in this species follow similar injection of human tubercle bacilli. The rabbits were injected either intravenously or subcutaneously, and all except two, in which the disease was localized, showed, when examined after death, generalized tuberculosis more widespread than after similar injection of human bacilli, but less acute, except in one instance, than after standard bovine bacilli.

The guinea-pigs were injected either intraperitoneally or subcutaneously. They all lived longer, and showed, on post-mortem examination, a less severe form of generalized tuberculosis than guinea-pigs similarly inoculated with standard bovine or human tubercle bacilli.

The investigations in these two cases have shown that the tubercle bacilli from each person are typically bovine in cultural characters, but fall distinctly below the standard of the type in virulence for the goat, rabbit, and guinea-pig. The experiments on animals have not shown clearly that there is a difference in virulence between the strains from the two persons.

On the other hand, there are decided differences between the strains obtained from the parents and that from one of their children. The latter strain, obtained from a gastric lavage, is dysgonic—but not so dysgonic as those of the parents—and of full bovine virulence.

A goat inoculated intramuscularly with 10 mg. of the culture died in forty-two days of general miliary tuberculosis, the lungs being closely beset with tubercles. Two rabbits inoculated intravenously, doses 0.01 mg., died of severe general miliary tuberculosis in twenty-two and thirty days. Two guinea-pigs inoculated intraperitoneally died of acute general tuberculosis in eighteen and nineteen days, and two inoculated subcutaneously of general tuberculosis in thirty-eight and forty-three days.

Summary and Discussion

We have given the histories of two families, in each of which occurred two cases of phthisis pulmonalis in adults and in one, in addition, a case of glandular tuberculosis in a child, and we have stated the bacteriological evidence which establishes that all five cases were infected with tubercle bacilli of the bovine type. In one family the bacilli in the two cases examined were fully virulent. In the other the bacilli from the two cases were typically bovine in cultural characters, but fell below the standard of bovine viruses in virulence for the test animals, while the strain from the child was dysgonic and fully virulent.

We have now to consider the sources of the bacilli in the several cases. For each family there are three possibilities: (1) the persons with pulmonary tuberculosis acquired the infection through contact with human carriers of bovine tubercle bacilli (none of the patients came into direct contact with cattle); (2) all the cases were due to infection by ingestion—that is to say, through the consumption of cows' milk or milk products containing bovine tubercle bacilli; (3) one member of the family was infected by bovine bacilli through contact or through the milk and transmitted infection to the other (and to the child).

In the first family the mother had been a milkmaid, and was notified as a case of pulmonary tuberculosis when the two children who subsequently developed phthisis were 11 and 9 years old respectively. As the diagnosis in the mother was not confirmed by finding tubercle bacilli in her sputum, and the periods between her illness and the appearance of clinical signs in the children were very long, we do not think that either of the children was infected by the mother. The son showed clinical signs of tuberculosis some two years earlier than the daughter, but it is improbable that he infected his sister, since for many years they had not lived in the same house. The opinion that the girl—who died of pulmonary tuberculosis—was not infected either by her mother or her brother is supported by the necropsy findings, which indicated the alimentary tract as the channel of entry of the bacilli. It is highly probable that this was also the channel of infection in the brother, who was particularly fond of milk.

In the second family the facts are more complex. A sister and the mother of Mr. T. died of phthisis pulmonalis in 1914 and 1924 respectively. Unfortunately the mother was never under observation in Glenlomond, and the type of bacillus in her case was not determined. We are unable to say, therefore, whether Mr. T. was probably infected by his mother or not. But if bovine bacilli were in fact transferred from mother to son the modification of virulence of the bacilli might possibly be the result of the prolonged residence in human tissues. There was nothing in his personal history to suggest that he might have been infected through milk. He was suffering from a cough in 1923, when he married, but was not notified as a clinical case of tuberculosis until 1929. His wife had pleurisy and an indefinite illness in her teens, but she was apparently well when she married and was not notified as a case of pulmonary tuberculosis until after the birth of her third child, in 1928. Her sister was notified in 1922 and attended a tuberculosis dispensary, but she was now well, though thin. Thus in each case there is a family history of tuberculosis and a personal history suggesting infection before marriage. If bacteriological examinations had not been made no suspicion need have arisen that one of the persons was infected by the other. But the occurrence in both cases of bovine bacilli identical culturally and exhibiting about the same degree of attenuated virulence strongly suggests familial infection, which we think was probably from the husband to the wife (on the assumption that the illness from which she suffered before marriage was not due to tuberculosis, or, if it was, that this first infection had been overcome). An alternative explanation is coincident attenuation of bovine bacilli in two persons, who were both infected with virulent bovine bacilli before their marriage. We think that familial infection is the more probable, since attenuated bovine bacilli in phthisis are rare: they have been found in only three other instances in upwards of 120 cases of pulmonary tuberculosis caused by tubercle bacilli of the bovine type.

With regard to the child the bacteriological evidence is against transmission of infection from one of the parents.

REFERENCE

[1] Walker, G.: *British Medical Journal*, 1934, i, 371.

THE ACUTE HAEMOLYTIC ANAEMIA OF LEDERER

BY

H. JOULES, M.D., M.R.C.P.

AND

L. M. MASTERMAN, M.D., M.R.C.P.

PHYSICIANS TO SELLY OAK HOSPITAL, BIRMINGHAM

Since Lederer[1] attempted a correlation of cases under the above heading (1925 and 1930) sporadic examples of this condition are found in the literature, mainly American. Parsons and Hawksley,[2] however, have reported nine cases in children, for the inclusion of which there appear to be very adequate grounds, despite the doubts cast by O'Donoghue and Witts[3] on the wisdom of including examples occurring in children and in pregnant women.

We think that this is one of the most important of the smaller classes of recently recognized anaemias, in view of (1) its amenability to treatment, and (2) the possible confusion with pernicious anaemia and infective endocarditis; thus valuable time is lost in giving the necessary treatment—namely, blood transfusion.

The aetiological factors are still unknown, the problem presented both clinically and haematologically being that of a febrile haemolysis of rather acute onset. The presence of pyrexia has been supposed by most writers to indicate that the basic cause must be an infection. It has seemed to us, however, that the extremely rapid haemolysis and regeneration of blood would, of itself, suffice to account for the pyrexia; while the dramatic, almost critical, fall of temperature which follows a relatively small transfusion cannot well be explained on an infective basis.

Four cases have come under our care during the routine of hospital practice in eighteen months, the details of which we will summarize before adducing the criteria on which this diagnosis should be established.

CASE I

A hospital porter, aged 21, was noted on May 8th, 1933, to have become appreciably paler during the few days prior to examination. There was no history of any previous serious ill-health, while the family history was good. No drugs had

TABLE I.—*Blood Counts in Case I*

Date	Treatment	Hb	R. B. C.	C. I.	Reticulocytes	W. B. C.	Polymorphs	Lymphocytes	Eosinophils	Hyalin	Remarks
		per cent.			per cent.		per cent.	per cent.	per cent.	per cent.	
8/5/33	Nil	45	2,040,000	1.1	—	7,500	52	41	2	5	Poikilocytosis; anisocytosis; macrocytosis, punctate basophilia
18/5/33	Nil	42	1,640,000	1.3	3.8	15,800	85	12	1	2	"
20/5/33	Campolon 2 c.cm. daily intramuscularly	—	—	—	3.8	—	—	—	—	—	—
23/5/33	" "	—	—	—	4.2	—	—	—	—	—	—
24/5/33	" "	—	—	—	5.4	—	—	—	—	—	—
25/5/33	" "	—	—	—	4.3	—	—	—	—	—	—
26/5/33	" "	40	1,520,000	1.3	4.8	25,000	74	17	1	6	Myelocytes, 2 per cent.
27/5/33	" "	—	—	—	4.4	—	—	—	—	—	—
29/5/33	" "	—	—	—	4.8	—	—	—	—	—	—
31/5/33	Blood transfusion 450 c.cm.	40	1,640,000	1.2	4.8	—	—	—	—	—	—
3/6/33	—	—	—	—	5.2	—	—	—	—	—	—
7/6/33	Campolon discontinued	42	1,880,000	1.1	3.0	—	—	—	—	—	—
14/6/33	—	40	1,640,000	1.2	—	11,000	67	25	8	5	—
26/6/33	—	60	2,520,000	1.2	—	—	—	—	—	—	—
30/6/33	—	55	2,680,000	1.0	—	—	—	—	—	—	—
7/7/33	—	55	2,620,000	1.0	—	—	—	—	—	—	—
14/7/33	—	50	2,680,000	0.9	—	—	—	—	—	—	—
22/7/33	—	65	2,560,000	1.3	—	—	—	—	—	—	—
3/8/33	—	65	3,320,000	0.9	—	—	—	—	—	—	—
9/8/33	—	65	3,440,000	0.9	—	—	—	—	—	—	—
15/8/33	—	65	3,240,000	0.9	—	—	—	—	—	—	—
22/8/33	—	70	3,400,000	1.0	—	—	—	—	—	—	—
28/7/33	—	95	4,160,000	1.1	—	—	—	—	—	—	—

been taken, nor was there any known contact with chemical poison. Five months earlier he had experienced ill-defined headaches. For three weeks he had noted giddiness, increasing pallor, and progressive dyspnoea on exertion. For six days his throat had been sore, headaches of a throbbing nature had intensified, while night sweats had been common.

The temperature was 101°, pulse 128, and respirations 26. His colour was "café-au-lait"; there was a slight icterus of the conjunctivae, and scattered petechiae were seen on the upper abdomen. The tonsils were enlarged but not acutely infected, while tonsillar glands were palpable bilaterally. The heart was slightly enlarged to the left, pre-systolic and systolic bruits being audible at the apex; rhythm was regular; blood pressure 150/90. The spleen was not palpable. The lungs were clear; no abnormal signs were present in the nervous system. The blood Wassermann was negative. The urine contained no albumin, bile, or red blood corpuscles. Tests for occult blood in faeces, which were of normal colour, were negative. Blood cultures were repeatedly sterile (aerobic). A fractional test meal showed a somewhat low acid curve, but otherwise normal. The indirect van den Bergh was positive.

Table I shows the initial and subsequent blood counts. The provisional diagnosis of infective endocarditis was made, but the repeated sterile blood cultures, the absence of red blood corpuscles from the urine, the absence of clubbing of the fingers and splenic enlargement tended to negative this. Intramuscular injections of campolon 2 c.cm. daily were then given without any reticulocyte response ensuing.

On June 1st 450 c.cm. of citrated blood were transfused, and this was followed within thirty-six hours by a fall in temperature to within normal limits, and great improvement in the general condition. Unfortunately an acute streptococcal tonsillitis supervened a few days later, giving rise to suppuration in the glands on the right side of the neck; after these had been incised convalescence, with a normal temperature, proceeded slowly *pari passu* with the rising blood count. The patient was discharged to the convalescent home on August 8th and has since returned to full work. Re-examination on January 25th, 1935, showed a normally healthy individual but for the presence of a mild degree of mitral stenosis. He is now capable of a full day's work, and a blood count shows a slightly raised colour index only.

TABLE II.—*Blood Counts in Case II*

Date	Treatment	Haemoglobin	R. B. C.	C. I.	Reticulocytes	W. B. C.	Remarks
		per cent.			per cent.		
23/11/33	Nil	33	1,120,000	1.5	—	2,800	Anisocytosis; poikilocytosis; punctate basophilia
29/11/33	Campolon 2 c.cm. a day	28	1,200,000	1.1	4	2,500	—
30/11/33 to 5/12/33	Campolon	—	—	—	Varied from 1.2 to 4.6	—	—
7/12/33	Campolon 2 c.cm. twice a day. Ferri et ammon. cit. 25 grains t.d.s.	28	1,200,000	1.1	1	4,200	—
14/12/33	Blood transfusion. 300 c.cm.						
15/12/33		55	2,400,000	1.1	—	4,500	—
19/12/33	—	50	2,280,000	1.1	—	4,200	—
28/12/33	—	60	2,700,000	1.1	—	—	—
30/12/33	—	78	3,700,000	1.0	—	6,100	—
5/1/34	—	70	3,500,000	1.0	—	3,100	—
14/1/34	—	80	4,040,000	1.0	—	6,100	—

CASE II

A single woman, aged 35, was admitted on November 22nd, 1933. The patient gave a fortnight's history of increasing weakness, dyspnoea on exertion, loss of appetite, and general malaise. Family history good. There had been no previous ill-health except for a similar attack in February, 1933, when she was ill for three weeks.

On admission she was very pale, of a lemon-yellow colour, with slight icterus. She had carious teeth and considerable pyorrhoea alveolaris. There was no glossitis. Heart and lungs were normal. The spleen was enlarged to just above the umbilicus, and was hard. The liver was palpable two inches below the costal margin. The pelvic organs were normal; menstruation was regular, and there had been no excessive loss. No abnormality was found in the urine.

The blood count (see Table II) closely resembled that of a pernicious anaemia. A test meal showed a low acidity curve, but was otherwise normal. Blood culture (aerobic) was sterile on three occasions. Van den Bergh's test gave an indirect positive reaction; the Wassermann was negative.

On admission her temperature was 101.4°, pulse rate 128, respirations 28, and during the following three and a half weeks the patient's temperature was raised, varying from 99.4° to 103°.

The condition was thought at first to be an example of the type of pernicious anaemia in which free HCl is found, and was treated with campolon 2 c.cm. daily intramuscularly, marmite by mouth, until November 30th, 1933, when she had 2 c.cm. of campolon twice daily and mist. ferri et ammon. cit. 25 grains three times a day. Her blood failed to show any response to this therapy, reticulocytosis remaining as before. Pyrexia continued, and there was no improvement in her general condition. On November 14th, 1933, 300 c.cm. of citrated blood were given intravenously. Following this the patient had a considerable rise of temperature (103° to 105°) lasting three days. The temperature then fell to normal, her general condition improved, and the spleen diminished in size.

On January 14th, 1934, her general condition had improved enormously and her blood count was: Hb 80 per cent., R.B.C. 4,040,000, C.I. 1.0, leucocytes 6,100. She had some teeth extracted, and her mouth was cleared on January 25th. Since then she has maintained her good health and has gained over two stone in weight. When seen on January 26th, 1935, her health was excellent and her blood count was: Hb 105, R.B.C. 4,720,000, C.I. 1.2, leucocytes 5,500.

CASE III

A man, aged 31, was admitted to hospital on March 30th, 1934. The family history was good, and there was no history of any previous ill-health whatever. No drugs had been taken, and the patient had not been in contact with any chemical poison. Fourteen days before he felt pain in the lower lumbar region lasting thirty-six hours. Subsequently some pain, stabbing in character, at back of neck. Lassitude, loss of appetite, and rapidly increasing pallor had been noted. Twenty-four hours before admission there had been a transient syncopal attack.

On admission the temperature was 101°, pulse 96, respirations 22. Skin, yellowish pallor. Definite icterus of conjunctivae, no petechiae seen; no glossitis. No septic focus found. Heart and lungs were normal and the blood pressure 120/70. The spleen was enlarged and reached to the umbilicus. It was firm and not tender. The liver was felt 1 inch below the right costal margin. No ascites present. Nothing abnormal in the fundi. The faeces were of normal colour; no occult blood present. Trace of albumin only in the urine.

Blood examination: R.B.C. 1,680,000, Hb 40 per cent., C.I. 1.2, W.B.C. 16,000. Reticulocytes 7.8 per cent., platelet count 240,000. Fragility: complete haemolysis 0.4 per cent. saline—trace of haemolysis up to 0.5 per cent. saline (control 0.35 per cent. and 0.45 per cent.); van den Bergh reaction positive indirect. Blood Wassermann negative. Fractional test meal—normal acidity.

During the next forty-eight hours the temperature rose steadily to 103°, one petechia was seen on left hand, and the general condition was much worse; frequent night-starts prevented sleep. On April 3rd, 1934, 450 c.cm. of citrated blood was transfused. Subsequently rapid movement followed. The temperature fell to normal in forty-eight hours, while Table III shows clearly the rapid rise in the red cell count. The diminution in the size of the spleen amounted to 3/4 inch daily, as mapped on the anterior abdominal wall. The patient was discharged forty-two days after admission in excellent health. Re-examined on January 14th, 1935, there has been a gain in weight of 21 lb. and no relapse of the anaemia; the full blood count is shown in Table III.

TABLE III.—*Blood Counts in Case III*

Date	Treatment	Hb	R.B.C.	C.I.	Reticulocytes	W.B.C.	Polymorphs	Lymphocytes	Eosinophils	Hyalin	Remarks
		per cent.			per cent.		per cent.	per cent.	per cent.	per cent.	
31/3/34	Nil	40	1,680,000	1.2	—	16,000	77	18	—	5.0	9 normoblasts in 200 cells; anisocytosis; slight poikilocytosis; polychromasia
1/4/34	Nil	—	—	—	7.8	—	—	—	—	—	
2/4/34	—	—	—	—	10.2	—	—	—	—	—	—
3/4/34	Blood transfusion 450 c.cm.	—	—	—	6.2	—	—	—	—	—	—
4/4/34	—	45	1,880,000	1.2	10.8	13,800	65	32	0.5	3.5	Myelocytes, 2%; Türk cells, 2%; nucleated reds, 8; normoblasts, 4%
6/4/34	—	—	—	—	8.8	—	—	—	—	—	—
7/4/34	—	48	2,080,000	1.2	9.2	—	—	—	—	—	—
10/4/34	—	52	2,300,000	1.1	7.0	6,800	61	27	2.0	10.0	Anisocytosis; poikilocytosis polychromasia
14/4/34	—	80	3,640,000	1.1	5.4	9,400	64	28	2.0	4.0	Eosinophil myelocytes, 1%; Myelocytes, 1%; platelets, 281,200
1/5/34	—	75	3,360,000	1.1	—	7,900	—	—	—	—	—
8/5/34	—	85	3,800,000	1.1	—	8,000	—	—	—	—	—
26/5/34	—	90	3,920,000	1.1	—	—	—	—	—	—	Platelets, 156,000
11/6/34	—	95	4,040,000	1.1	—	—	—	—	—	—	—
14/1/35	—	100	4,280,000	1.2	1.0	10,400	70	25	1.0	4.0	—

CASE IV

A married woman, aged 34, was admitted on November 17th, 1934. On the 13th she had been delivered of a premature living infant after quinine induction. During this pregnancy she suffered from lassitude and oedema of face and ankles. She was advised to go into hospital, but refused. On the morning of admission patient collapsed.

The family history was as follows: father died of silicosis six years ago, mother well except for bronchitis, two brothers and two sisters alive and well, one sister died in infancy.

The patient has four children, eldest 4½ years old. She had had some oedema of legs with previous pregnancies. Previous illnesses: nephritis ten years ago, when patient was ill for four months, and had oedema of the legs, sore throat, and some dimness of vision.

On admission the patient was very pale, with some icterus of the conjunctivae. She had oedema of the face, feet, and

ankles. Her heart and lungs were normal; blood pressure 120/82. The uterus was enlarged, the fundus being halfway between the umbilicus and the symphysis pubis. It was well contracted and not tender. The lochia were normal, and a vaginal examination showed nothing abnormal in the pelvis. The spleen was enlarged and hard. Her urine was quite normal and the blood urea 29 mg. per cent. She had a temperature of 99°, pulse rate 120, and respirations 20. The blood culture was sterile, the Wassermann reaction negative, and there was no increased fragility of red blood cells. A test meal showed an achlorhydria, and was unaltered by histamine stimulation.

The patient had some pyrexia during the first week, the temperature varying from 98° to 101.4°, with a pulse rate of 88 to 120.

Treatment was started on November 18th, 1934, with mist. ferri et ammon. cit., 30 grains t.d.s. Liver extract, 1 drachm t.d.s., and halimalt. There was no improvement in her general condition. The pyrexia continued, and the blood count remained almost stationary (see Table IV), the reticulocytosis diminishing. On November 24th 500 c.cm. of citrated blood was given intravenously. The next morning the temperature was 99°, and thereafter remained within normal limits. Convalescence was rapid, the spleen diminishing palpably daily, the oedema subsiding within a few days. She was discharged on December 22nd. The spleen could not be felt and the general condition was very good. On January 2nd, 1935, she was readmitted with a thrombosis of the left short saphenous vein, but her general health was unimpaired and she was discharged on January 19th.

On November 26th a blood count was taken of the infant—then thirteen days old—which was: Hb 125 per cent., R.B.C. 6,120,000, C.I. 1.0, leucocytes 14,400. At no time had it shown evidence either of anaemia or icterus neonatorum.

TABLE IV.—*Blood Counts in Case IV*

Date	Treatment	Hb	R.B.C.	C.I.	Reticulocytes	W.B.C.	Polymorphs	Lymphocytes	Eosinophils	Hyalin	Remarks
		per cent.			per cent.		per cent.	per cent.	per cent.	per cent.	
20/11/34	Mist. ferri et ammon. cit. 30 grains t.d.s.; liver extract 1 drachm t.d.s.; halimalt 1 oz. t.d.s.	17	1,520,000	0.5	15.8	8,900	74	19	—	6	Marked anisocytosis; poikilocytosis; 1 nucleated red cell seen in 100
21/11/34	—	—	—	—	4.8	—	—	—	—	—	
22/11/34	—	—	—	—	3.2	—	—	—	—	—	
24/11/34	Blood transfusion 500 c.cm.	21	1,840,000	0.5	8.6	10,800	80	14	2	3	Basophil punctation
27/11/34	Mist. ferri et ammon. cit.	35	2,800,000	0.6	9.8	6,400	—	—	—	—	—
1/12/34	—	35	2,700,000	0.6	9.0	7,700	—	—	—	—	—
3/12/34	—	45	3,870,000	0.59	—	7,400	—	—	—	—	—
6/12/34	—	—	—	—	1.0	—	—	—	—	—	—
11/12/34	—	50	3,300,000	0.7	1.4	5,500	—	—	—	—	—
15/12/34	—	65	4,160,000	0.79	1.0	5,500	—	—	—	—	—
21/12/34	—	65	4,010,000	0.8	—	4,400	—	—	—	—	—
3/1/35	—	80	4,840,000	0.8	—	—	—	—	—	—	—
14/1/35	—	90	4,720,000	0.9	—	—	—	—	—	—	—

Summary of Cases

In the four cases reported the patients were all under 40 and over 20 years of age, and the sexes were equally represented. There was an absence of any family history of anaemia, and no predisposing factors were elicited. Three had enjoyed good health, while in Case IV there was a doubtful history of nephritis ten years ago, and during previous pregnancies she had suffered from oedema and lassitude, but there is no evidence of any renal damage at the present time. Parsons[2] in his series of cases found gastro-intestinal trouble not uncommon, but none of our patients had suffered in this way. In each case the history was short and the onset of symptoms, which appeared to be those of a progressive anaemia, was fairly acute.

Infection.—Case I had a slight tonsillitis and adenitis. Case II suffered from pyorrhoea alveolaris. It seems doubtful whether either of these conditions had any connexion with the disease.

The Blood.—No case presented itself until the haemoglobin was 40 per cent. or under. In three cases the blood film closely resembled that of pernicious anaemia, the laboratory reporting that of Case II as typical of this disease. Reticulocytes were present in the first blood film (from 4 to 14 per cent.) in each case. In three cases there has been no appreciable leucocytosis except that which occurred in Case I subsequent to the intercurrent suppurative adenitis of cervical glands. We regard Case IV, the only one with achlorhydria, as being a combination of microcytic, achlorhydric, and haemolytic anaemia. It is of interest to note that, despite the extremely low count the patient had, the infant was haematologically normal. An indirect positive van den Bergh reaction was obtained in every case.

Treatment.—Two of the patients were treated with intensive intramuscular liver therapy, and the third with oral liver administration. There was no response whatever, and we are of the opinion that it is unjustifiable to delay treatment by transfusion: response to this in all cases was dramatic, and up to the time of writing no relapse has occurred.

Diagnostic Criteria

A survey of the reported cases fails to show a blood picture which can be taken as pathognomonic of this anaemia. There are, however, outstanding features common to all, indicating the haemolytic nature of the condition. Reticulocytosis, usually not exceeding 15 per cent., has been present in all cases where an estimation has been made. The red blood cells have shown anisocytosis, poikilocytosis, and basophil punctation. Definite icterus is almost invariably a feature, and the van den Bergh reaction gives an indirect positive result. The urinary findings are variable, but in the most acute cases bile is present, while haemoglobinuria has been noted. The colour index in the majority, as in three of our series, is at or above 1.

It is interesting to note that Lederer and Parsons, in particular, have found leucocytosis common, especially in children, a fact which sometimes gives rise to difficulty in differentiating this disease from acute leukaemia. In three of our four cases the initial white blood count has not been raised, one case showing a leucopenia.

All reported cases have pyrexia, which falls rapidly after transfusion.

Test-meal findings have not been adequately reported, but we find three of them normal except for slight hypochlorhydria.

No neurological changes have been found by any observer. Finally we regard the dramatic and permanent response to transfusion as the outstanding diagnostic criterion.

Differential diagnosis from pernicious anaemia, infective endocarditis, acholuric jaundice, and acute leukaemia would seem to present most difficulty, but the features emphasized should serve to obviate this.

Treatment

Early transfusion is at present the only known therapy which influences the prognosis. This response is well borne out in the preceding account of our cases. A fatal termination is reported by Payne[4] after transfusion in a severe case, despite satisfactory compatibility tests.

Recently a case has come under our care in extremely grave condition, where it was impossible to transfuse owing to incompatibility with a large series of tested donors. This patient died two days after admission, and complex post-mortem findings are being investigated.

Witts and O'Donoghue stressed the need for further knowledge of response to liver therapy. Cases I, II, and IV demonstrate conclusively that there is no response to intensive treatment by this haematinic factor.

Conclusions

Four cases of haemolytic anaemia of Lederer have been described.

It is probable that this condition is more frequent than is generally recognized, and that full investigations should be undertaken of all anaemias prior to treatment. Reticulocyte counts are of value in differential diagnosis. Liver therapy can only be of value in treatment of anaemia where the haematinic factor is absent—that is, in pernicious and the allied anaemias.

The therapeutic value of transfusion has been stressed.

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[2] Parsons, L. G., and Hawksley, J. C.: *Arch. Dis. in Child.*, 1933, viii, 184.

[3] O'Donoghue, R. J. L., and Witts, L. J.: *Guy's Hospital Reports*, 1932, lxxxii, 440.

[4] Payne, R. V.: Ibid., 1934, lxxxiv, 65.

K. A. Seggel (*Münch. med. Woch.*, June 7th, 1935) gives an account of the blood transfusion service organized in connexion with the University Hospital in Leipzig. At first patients with minor ailments and members of the hospital staff served as donors. Now a regular panel has been organized, and every would-be donor (men between the ages of 21 and 50) has to undergo a searching medical examination which is repeated every three months. To be acceptable, donors must have at least 80 per cent. haemoglobin, 4.5 million erythrocytes, a normal leucocyte count, with no left displacement or eosinophilia. There must be no evidence of any infectious disease, and at every re-examination the donor is required to sign a statement to the effect that he has not acquired venereal disease, malaria, or other communicable disease since the last examination, and that he knows nothing of any such disease in his family. A criminal record or an ancestry not purely Aryan is a disqualification for a would-be donor. Blood is paid for at the rate of 5 Reichsmarks per 100 c.cm., and it has been found fairer to pay on this scale than to give a fixed sum per transfusion of any quantity of blood; for when frequent transfusions of small quantities of blood are given, such a rigid system of payment would be too expensive for the patient. The donor is not expected to part with more than 400 c.cm. at a time; only in an emergency and with his express consent can he be asked to provide more.

THE HISTIDINE TREATMENT OF PEPTIC ULCER OF THE LESSER CURVATURE

WITH A NOTE ON TWELVE CASES*

BY

DAVID SMITH, M.D., F.R.F.P.S.GLAS.

PHYSICIAN, ROYAL INFIRMARY, GLASGOW

How seldom in these days does one pick up a medical journal and fail to find an article, an annotation, or correspondence on the much-vexed question of peptic ulcer! The symposium on the subject published in the recent issue of *St. Bartholomew's Hospital Reports*[1] bears testimony to the interest which all sections of medicine have in this difficult problem.

It is gratifying to know that co-operation is gradually replacing antagonism, and one feels that a real advance in knowledge is now made possible. The physician must not forget his able scientific helpers, and the surgeon must cease to think that by operation he cures peptic ulcer. He removes the ulcer area, or by his able craftsmanship he manages to place it out of the line of traffic, but he leaves the individual still the same, although relieved of symptoms, at least for a time. It is a question whether the great advance in surgical technique has not hindered more than helped our knowledge with regard to the aetiology of peptic ulcer. The physician is no less culpable, for by treatment he only allays symptoms and fosters healing, but fundamentally the patient is still prone to relapse.

In the present state of our knowledge—or probably ignorance—we each might be more helpful to humanity if we confessed our shortcomings and concentrated less on friendly rivalry concerning a statistical evaluation of cure. In the past the physician has "cured" peptic ulcer by directing his attack on the factors which prevent healing. By dieting, alkalis, and the exhibition of drugs to depress secretion and relieve spasm, he has undoubtedly promoted healing. The patient, relieved of his symptoms and the immediate danger of active ulceration, has no guarantee that his symptoms will not return and his dangers again make life itself an uncertainty. The unfortunate sufferer has to lead a restricted life, especially as regards diet. It is for reasons such as these that critical examination of any new theories should be explored and treatment based on logical experiment investigated.

Origin of Histidine Treatment

Treatment based on a new conception of the aetiology of peptic ulcer has been instituted recently by Aron,[2] working in Strasbourg. In his thesis a working hypothesis is based on Mann and Williamson's[3] operation for producing peptic ulcers experimentally in dogs. If the natural secretions of the duodenum are diverted into the terminal ileum experimental ulcers develop in the stomach and there are other severe nutritional disturbances, with death of the animals in a few weeks' time. It is argued that these ulcers are caused by the lack of regurgitation of the duodenal contents, but Aron considers it is the lack of certain amino-acids. If tryptophan and histidine are administered by injection ulcers do not develop. Histidine alone has the same effect, but tryptophan has not. Aron found, however, that the latter increases the rate of cicatrization of experimental wounds of the gastric mucosa. He was satisfied with his animal experiments, and clinical investigation on patients was instituted. He records that on normal diet, and with the patients receiving ambula-

* In this study the histidine used was larostidin brand histidine, kindly supplied to me by the Hoffmann-La Roche Chemical Works, Ltd.

tory treatment, there was a disappearance of symptoms and an increase in weight. The treatment has been explored with success by Bogendorfer,[4] Weiss,[5] Deloyers,[6] and Hessel.[7]

Recently Bulmer[8] in this country has published his results up to date. He states definitely that his report is preliminary, and although his results are on the whole favourable he is drawing no conclusions until some years have passed. In this report I wish to endorse his caution. In a critical examination of any form of treatment it is necessary to review a large number of cases, and this can only be done if different observers will record their results, giving specific information which may be used in a grand summation at a later date.

The histidine treatment of peptic ulcer is new, and it is logical. It is therefore worthy of trial. For these reasons it was decided to try its effect in a small series of cases which fulfilled certain criteria—namely, (1) a history suggestive of gastric ulcer, (2) the exclusion of cases obviously surgical, and (3) unequivocal radiological evidence of ulcer of the lesser curvature.

Case Histories

CASE I

Male, aged 46 years, engineer's labourer, was admitted to hospital on November 30th, 1934, complaining of pain in the stomach after meals, which had troubled him for the past ten years. In 1924 he first became aware of having "indigestion." The discomfort was slight, and he found relief by taking alkali. He paid little attention to his disability until in May, 1933, he became aware of severe pain, burning in character, which came on two and a half hours after every meal. This pain was accompanied by flatulence and water-brash. He had medical treatment, with very little relief. In October, 1934, after the condition coming and going every few weeks, he had a severe relapse. Pain, flatulence, and water-brash were worse than formerly, and he began to have vomiting. There was no blood in the vomitus, but he found that his pain was relieved when he vomited acid-tasting material. At times the taking of food helped to relieve pain. He was constipated, and the faeces were very dark during September and October, 1934. He stated that he had lost a few pounds in weight. Sometimes pain wakened him at night, and he felt sick and brought up sour mouthfuls.

On examination he was ill-looking. He was edentulous and had a furred tongue. There was marked tenderness in the epigastrium and left hypochondrium. Special examination showed hyperchlorhydria, occult blood in the faeces, and a large ulcer of the lesser curvature. He was a ward case and was treated as described. In twenty-nine days, and after twenty injections of larostidin he felt perfectly well. He had increased his weight by 4 lb., there was no occult blood in the faeces, and the stomach was normal after critical screening and examination of films. He was discharged from hospital on January 5th, 1935.

He relapsed on March 13th, complaining of pain, which was felt through to the back. Ordinary treatment was advised, but he became worse, and on March 30th he had a further four injections of larostidin because a small ulcer was seen on the lesser curvature at the old site. After the fourth injection he felt quite well, and remained so. Examination by *x* rays on April 7th showed the stomach normal, and it has remained so up to date (June 1st). When he relapsed it was found that he had lost 2 lb. in weight, but after his larostidin he gained 4 lb.

CASE II

Male, aged 62 years, crucible builder, was admitted to hospital on December 10th, 1934, complaining of discomfort in his stomach of five years' duration. In 1929 he had a feeling of distension, which he likened to a ball in his stomach. This came on immediately after a meal, and lasted one or two hours. He had no actual pain. Later he began to complain of flatulence, heartburn, and water-brash. His discomforts seemed to bear little relation to the character of the food taken. He found his greatest comfort in eructations. He did not complain of constipation, and he had no melaena. This indefinite condition continued with short remissions till June, 1934, when he began to have pain at irregular intervals after food. The pain spread from the epigastrium across the upper abdomen. He obtained no relief from food or alkaline mixtures. Gradually the pain became worse, and he was rarely free from it. He felt sick, but had no vomiting. He lost considerable weight, which he estimated at about 2 st.

On examination he was pale and had some palpable glands in his neck, axillae, and inguinal regions. He had a slow, auricular fibrillation, which gave rise to no symptoms. He was edentulous but had artificial teeth. His tongue was clean and his fauces healthy. Palpation revealed tenderness below and to the left of the umbilicus. Special examination showed slight hyperchlorhydria, occult blood in the faeces, and an ulcer of the lesser curvature. He was a ward case, and was treated as described. After seven injections of larostidin he was well except for troublesome flatulence, which came on while he was at his meals. A full course of twenty-five injections was given, but his flatulence did not improve. He was given two tablets of larostidin daily, and his flatulence disappeared in one week. In thirty-two days he was feeling perfectly well. He had put on 7 lb. in weight. There was no occult blood in the faeces, and the stomach was normal after critical screening and examination of films. He was discharged from hospital on February 2nd, 1935.

CASE III

Male, aged 24 years, farm servant, was admitted to hospital on November 25th, 1934, complaining of weakness and of vomiting blood of one day's duration. Seven months before (in April of the same year) he had had pain in the stomach, which came on one to two hours after food. It usually lasted about an hour, and was relieved when he ate more food or took an alkaline mixture. He had no vomiting at that time. This pain continued for three weeks and then became easier, but returned with greater severity in October, 1934. This time he felt sick and vomited, but his pain was not relieved. Three days before admission to hospital he collapsed at his work, and on the day of admission he had a severe haematemesis and fainted. Throughout his illness he was constipated, and for a short time prior to admission he had noticed his faeces dark in colour. He had lost so much weight that he thought he was "in a decline."

On examination he was pale and perspiring. His tongue was moist and clean. The teeth were good and the fauces healthy. Palpation of the abdomen was generally resisted, and this was especially so over the upper region of both recti. There was marked tenderness an inch and a half above the umbilicus in the mid-line. Special examination was not carried out at once owing to the haematemesis. He had marked melaena. He was treated in the usual way for severe bleeding, and on December 25th special examination was carried out. He had a profound secondary anaemia. Gastric acidity was normal. Occult blood was present in the faeces, and an extensive ulcer was present on the lesser curvature. He was now allowed up, and as a ward case was treated as described. Treatment was not commenced until January 12th, 1935, because it was thought that the haematemesis might be a contraindication. As *x* rays showed no improvement the patient was given a full diet, ferri et ammon. cit. 30 grains t.i.d., and larostidin daily. On January 24th, after twelve injections, the ulcer was hardly seen on the lesser curvature, and occult blood was no longer found in the faeces. Six more injections were given, and on February 1st there was no evidence of ulcer. He was in the ward seventy-three days, but only twenty-four days under larostidin treatment, during which time he had eighteen injections. He tolerated his iron perfectly, and was discharged on February 5th feeling very fit. He had a full blood count, and after careful screening and examination of films there was no evidence of ulcer. He increased his weight 1 st. 12 lb.

CASE IV

Male, aged 54 years, blacksmith, was admitted to hospital on October 21st, 1934, complaining of pain in the stomach going through to the back and accompanied by severe flatulence of twenty years' duration. He had been consti-

pated during the greater part of his life, and in 1914 he experienced a sharp pain in the stomach, which came on after food. He paid little attention to this, and in a month or so it disappeared. In 1919 it recurred, but he did not consult a doctor until 1920. He was given an alkaline powder, and this relieved him. He was not so severely pained during the next eight or nine months, but he was never really happy about his digestion. The pain came on one to two and a half hours after food, and was not relieved by it. He had severe flatulence, but eructations did not ease him. In June, 1934, the pain became very commanding and flatulence "doubled him up." Vomiting commenced, and at times gave him relief. He had lost weight. He was seen as an out-patient on September 17th, and an ulcer was found on *x*-ray examination. For personal reasons he could not come under observation until five weeks later.

On examination he was ill-looking. He had artificial teeth. The tongue was clean and the fauces normal. The recti were both rigid in their upper thirds. Tenderness was elicited an inch and a quarter above and half an inch to the right of the umbilicus. Special examination showed hyperacidity, occult blood in the faeces, and an ulcer of the lesser curvature. He was a ward case, and was treated as described. In thirty days, and after twenty-nine injections of larostidin, he was feeling perfectly well. He had increased his weight 1 st. 1 lb.; there was no occult blood in the faeces, and after careful screening and examination of films no evidence of ulcer was seen. He was discharged from hospital on November 20th.

CASE V

Female, aged 58 years, housewife, was admitted to hospital on November 5th, 1934, complaining of gnawing pain under the ribs on the left side of eight months' duration. At the beginning of March, 1934, she had begun to lose her appetite, and became aware of a dull, gnawing pain under the left costal margin. It was not very severe and was not constant. The pain had no relation to the taking of food. She had no sickness. Neither food nor alkalis relieved the pain. She was constipated, and very troubled with flatulence and heartburn. She stated that she was losing weight.

On examination she was rather pale, and had a foul breath. Her tongue was dry. Her upper teeth were artificial and her lower teeth much decayed. She resisted palpation in the epigastrium, and there was a localized tender spot just to the left of mid-epigastrium. Special examination showed normal acidity, occult blood in the faeces, and an ulcer of the lesser curvature. She was a ward case, and was treated as described. In twenty-nine days, and after sixteen injections of larostidin, she was feeling perfectly fit. She had increased her weight by 7 lb. There was no occult blood in the faeces, and the stomach was normal after careful screening and examination of films. She was discharged from hospital on December 4th.

CASE VI

Female, aged 59 years, housewife, admitted to hospital on December 15th, 1934, complaining of pain in the stomach with "belching of wind" of two years' duration. In December, 1932, she became aware of indigestion. Pain and flatulence would come on at various times after food, but it had no definite time relationship to meals. Sometimes she vomited, and on other occasions induced vomiting, for she found this relieved her. She obtained relief by means of bicarbonate of soda. The vomitus was sour, but never contained blood. She was constipated. She doctored herself for almost a year, and in September, 1933, attended the surgical out-patient department. She was treated there, but with no improvement. She had some bronchitis, and on *x*-ray examination an ulcer of the lesser curvature was observed. She was recommended to the medical out-patient department for treatment for her bronchitis and was to return for surgical treatment by operation. At the medical out-patient department, when her bronchitis improved, she was given a scheme of diet and an alkaline mixture. This gave her no relief. She continued to suffer, and in July, 1934, developed asthma, for which she was treated. During the autumn of 1934 she became worse, and surgery was considered, but it was thought that she should have ward treatment for her chest and then be transferred to a surgeon.

On examination on December 15th she was an unhealthy-looking woman, with physical signs of bronchitis, and gave a history of asthma, which proved to be justified. Her teeth were carious. Her tongue was dirty, and there was marked tenderness in mid-epigastrium. She had no appetite. Special examination showed normal acidity, occult blood in the faeces, and a very large ulcer of the lesser curvature. In thirty-four days, and after twenty-five injections of larostidin, she was perfectly fit. She had increased 4 lb. in weight. There was no occult blood in the faeces, and the stomach was normal after critical screening and examination of films. Her bronchitis had cleared up, and she had ceased to have attacks of asthma. She was discharged from hospital on January 8th, 1935.

CASE VII

Female, aged 47 years, spooler, was admitted to hospital on January 24th, 1935, complaining of pain in the stomach of fifteen years' duration. About the beginning of 1920 she began to have pain after food. At first she could only say that it came on between meals when she was at her work, and then it went away. Sometimes the pain would go away for a few weeks. After about a year she began to have severe spasms two to three hours after food, and she obtained relief by eating or drinking. An alkaline powder gave her some relief. She was treated by rest, diet, and alkaline mixtures but with little effect. She lost her appetite and was troubled with water-brash. She had no heartburn, flatulence, or vomiting. Sometimes she was wakened at night with water-brash, but not with pain. She was constipated, and lost about 1 st. in weight. Before admission she was beginning to feel very weak and unfit.

On examination she was ill-looking, and had a tendency to acne rosacea. She had artificial teeth. Her tongue was clean and the fauces healthy. Palpation revealed tenderness two inches above the umbilicus in the middle line. Special examination showed a normal acidity, occult blood in the faeces, and an ulcer of the lesser curvature. She was a ward case, and was treated as described. In thirty-nine days, and after twenty-five injections of larostidin, she was perfectly well, and taking her food with good appetite. She had gained 1 lb. in weight. There was no occult blood in the faeces; the stomach was normal after critical screening and examination of films. She was discharged from hospital on March 4th, 1935.

CASE VIII

Male, aged 40 years, compositor. He was not admitted to hospital, but was treated while he continued his work. He was first seen in 1930, complaining of pain and flatulence of six years' duration. In 1924 he began to have a feeling of distension, and was tender in the stomach one hour after food. He was much troubled with eructations, and was sometimes wakened at night with pain in the mid-epigastric region. He obtained some relief from alkalis. He had undergone many forms of treatment, and had been told he had an ulcer of his stomach. There was a marked family predisposition to peptic ulcer. From 1924 until 1930 he was rarely free from symptoms.

When seen in 1930 he was pale, emaciated, and miserable-looking. He had penetrating pain coming on one to two hours after food, and always had a loaded feeling in the pit of his stomach. Food did not relieve his pain. He was constipated and felt sick, but did not vomit. Special examination revealed hyperacidity, occult blood in the faeces, and prepyloric ulcer on the lesser curvature. He was given adequate medical treatment, commencing with four weeks' rest in a nursing home and diet, and medication for one year. During this time he was under constant observation, and, apart from the disappearance of occult blood, there was little improvement. From then until December 3rd, 1934, he remained a gastric invalid, and now wished for something surgical.

Routine examination revealed much the same as in 1930, and occult blood was again present. He was persuaded to undergo medical treatment by larostidin, and twenty injections were given. He improved rapidly, and stated he was better than he had ever been. A persistent flatulence yielded to the administration of two larostidin tablets daily. On January 21st, 1935, he had gained 7 lb. in weight, and there

was no occult blood in the stools. The stomach was normal on critical screening and examination of films.

CASE IX

Male, aged 47 years, clerk. He was not admitted to hospital. He was first seen on December 21st, 1934, complaining of pain all over the upper abdomen of twelve years' duration. In 1922 he began to have a sense of distension immediately after meals. At first this was relieved by eructations. Soon this discomfort became actual pain, and it came on half an hour after meals. He did not think that the character of the food made much difference. He rarely felt sick and did not vomit. He was very constipated. He had been treated by rest, diet, and holidays, and had consumed much powder and swallowed many mixtures with only relief at the time. His doctor reported that an ulcer was present on the lesser curvature in 1933.

On examination he was thin, and palpation of the abdomen revealed rigidity of the upper part of the left rectus muscle. He had a definite tender spot two inches above the umbilicus and one inch to the left. Special examination showed hyperacidity, occult blood in the faeces, and an ulcer of the lesser curvature. Twenty-five injections of larostidin were given, and there was steady improvement. On January 23rd, 1935, he had increased 8 lb. in weight, and was feeling perfectly fit. There was no occult blood in the faeces, and the stomach was normal after critical screening and examination of films.

CASE X

Male, aged 25 years, book-keeper. He was not admitted to hospital, but was treated while he continued his work. He was first seen on November 30th, 1934, when he was complaining of pain in the stomach coming on one and a half hours after food. This began in 1930, and during these four years he was only free from gastric discomfort for short periods. He found that a heavy meal upset him most, and he usually had greatest discomfort after his dinner, which he took about 6.30 p.m. He also noticed that he was badly constipated and required much medicine to move his bowels. He was not sick and did not vomit. A gastric ulcer had been found on radiological examination early in 1934, and adequate medical treatment had failed to give him much relief.

On examination he had a clean tongue, good teeth, and healthy fauces. Palpation of the abdomen was described as painful, and he had a tender area in mid-epigastrium. Special examination revealed normal acidity, occult blood in the faeces, and a prepyloric ulcer of the lesser curvature of the stomach. Twenty-five injections of larostidin were given, and he responded well. He gained 6 lb. in weight, and on January 3rd, 1935, there was no occult blood in the faeces and the stomach was normal after critical screening and examination of films.

CASE XI

Male, aged 60 years, traveller. This patient was treated as an ambulatory case at home, though not at his work. The history is rather indefinite, but for years he had complained of his stomach, and he attributed this to his irregular habits, necessitated by his occupation. He had frequently been told that it was gastritis. He partook of much alkaline powder, which relieved his discomfort, and he was able to continue his work. If he did not take powder regularly he had heartburn and was constipated. He had neither sickness nor vomiting. In September, 1934, he had influenza, and was just recovering when he had a severe haematemesis and melaena. The emergency was treated, and in October, 1934, he was *x*-rayed, a large ulcer being found on the lesser curvature. Treatment for the ulcer was then carried out, but he remained very anaemic and his gastric discomfort was unrelieved.

On examination on January 6th, 1935, he was anaemic and ill-looking and had lost weight. Palpation revealed tenderness in the epigastrium two inches above the umbilicus, and half an inch to the right. Special examination revealed normal acidity, occult blood in the faeces, and an ulcer of the lesser curvature of the stomach. Twenty-five injections of larostidin were given, and at the same time ferri et ammon. cit. 30 grains t.i.d. On February 11th the patient's blood count was normal, and he was feeling fitter than he had done for many years. He had increased 5 lb. in weight. There was no occult blood in the faeces, and the stomach was normal on critical screening and examination of films.

CASE XII

Male, aged 38 years, canvasser. He was not admitted to hospital, but was treated while he continued his work. He was first seen on August 1st, 1934, complaining of pain in the pit of the stomach of ten years' duration. In 1924 he had acute pain in his stomach after eating tainted meat. He consulted a doctor, who said it was gastritis. The pain was constant. He had no vomiting. It passed off in two or three days. He had diarrhoea. Apart from vague indigestion he was not much troubled until June, 1931, when he had a bad attack after eating ice-cream and fruit. The pain wakened him at night, and it was diagnosed by his doctor as "colic." He was exhausted after the attack. The same vague uneasiness followed, and in November, 1931, he had another attack with sickness and vomiting, which gave him relief. He began to lose weight, and he had now definite pain one to two hours after meals. Treatment by rest, diet, and alkaline mixtures had little effect. He gradually felt he was unable to take any kind of food without pain and a sense of fullness. Alkalis had no effect in relieving his distress.

On examination when first seen he was thin and miserable-looking. His tongue was coated. He had artificial teeth and his fauces were healthy. Palpation of the abdomen revealed tenderness in the mid-epigastrium. Succussion was present three hours after a meal. Special examination showed normal acidity, occult blood in the faeces, and an ulcer of the lesser curvature. Treatment with belladonna, bromide, and chloral hydrate was tried, with no material benefit. On November 19th larostidin treatment was commenced. Twenty-five injections were given, and improvement was noticed after the first few injections. On January 4th, 1935, he had gained 8 lb. in weight and there was no occult blood in the faeces. He felt very fit, and stated he had not felt so well for years. The stomach was normal on critical screening and examination of films.

Summary of Cases

These twelve patients' case-histories fulfil the criteria stated. Nine are men and three are women. Their ages range from 24 to 62 years. Fractional analysis after a gruel test meal showed curves of gastric acidity within normal range in seven, while five showed moderate hyperacidity. The duration of gastric symptoms varied from seven months to twenty years. The onset of pain was from immediately after food up to two hours later, and was described as burning, stabbing, gnawing, acute stab through to the back, etc. In seven cases there was complaint of flatulence, and in these heartburn and water-brash gave rise to marked discomfort. The taking of an alkaline powder gave relief in six cases, and in five vomiting occurred, but in only three was relief obtained. Ten complained of constipation, and in two there had been severe haematemesis. Occult blood was present in ten and melaena in two. All patients stated they had lost weight, and tenderness was elicited on palpation in every case. The tender spots varied from mid-epigastrium to left or right hypochondrium. Radiological examination was carried out in all cases, and definite ulceration of the lesser curvature was seen.

Method of Treatment

These twelve cases were treated as follows: (1) The patients were allowed to be up and about. (2) Ordinary diet was permitted without restriction. (3) Daily injections of 5 c.cm. larostidin—that is, 4 per cent. histidine—were given. (4) No other form of treatment was used. Of the twelve cases, seven were treated in the wards, in order to study them more carefully, and five were treated as ambulatory cases in private. The hospital patients were allowed to be up, and assisted in various

ward duties. Four private patients continued their ordinary occupations, and one was up and about but not at his work.

The first symptom to disappear was discomfort. This refers to the vague feelings of fullness, soreness, "as if a ball was present," nausea, tastes in the mouth, and the many other colourful expressions which are retailed by the sufferer from gastric ill-health. Any vomiting was almost immediately controlled, and before long pain ceased to be a disturbing factor. Loss of appetite was not a common complaint, but when present there was a speedy return of a desire for food. A striking

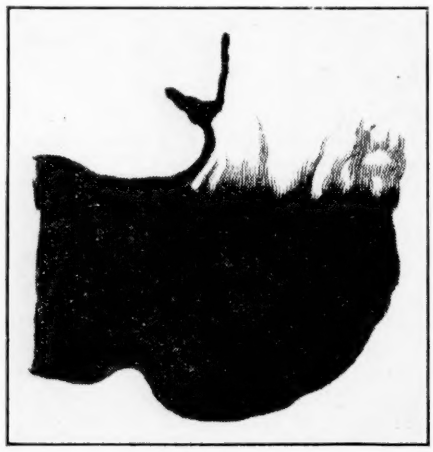

FIG. 1.

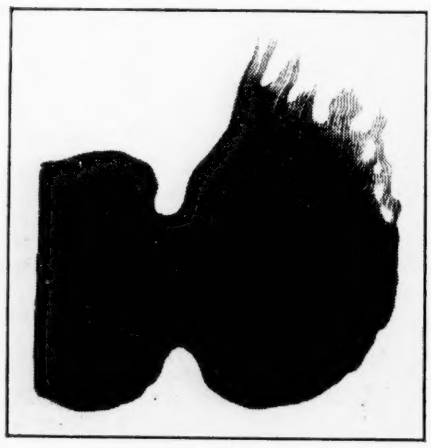

FIG. 2.

feature was the rapidity with which the general nutrition of the patients improved. They soon looked healthier and had a better colour, and their weight increased each week. In no case was there a failure to gain substantially in weight. The function of the gastro-intestinal tract improved. In cases where there had been gastric retention due to pylorospasm the emptying time improved. The better function was also seen in the relief from constipation. Definite flatulence was the most obstinate subjective symptom. In two cases where it persisted throughout the whole course of injections it was completely relieved by the daily administration of two larostidin tablets each containing 0.2 grain histidine. Tenderness on palpation was present in all cases until several injections had been given, but the most refractory yielded after the twentieth dose.

It is not claimed by Aron that radiological cure is achieved in all cases, but in this small series striking radiological results were obtained. It is impossible to show the appearances before and after treatment in all cases, but as an index of the results obtained Figs. 1 and 2 are illustrative, but are in no way exceptional.

Conclusions

In reporting these results I do not wish to acclaim histidine as a certain cure for peptic ulcer, even of a simple lesser curvature type; but the rapid clinical improvement, together with the radiological evidence, goes far to show that the treatment is beneficial in relieving gastric distress and hastening the healing of an obvious ulcer. Its healing value is illustrated in the record of the following case.

Male, aged 50 years, joiner. Complained that he had been troubled with pain after food since 1919. Suffice it to say that his condition was suggestive of prepyloric ulcer, and he was *x*-rayed in 1920 and the diagnosis was confirmed. From

FIG. 3.

1919 to 1928 he was treated adequately on medical lines, and obtained little if any relief. At this latter date he perforated, and an emergency operation was performed with suture of the perforation. His symptoms returned within a few weeks, and he led a miserable life until 1934, when in the month of November he began to have signs of pyloric obstruction and was admitted to hospital. A fractional test meal and *x*-ray examination confirmed the diagnosis that he had obstruction and that there was considerable gastric dilatation. In addition, there was found a large ulcer on the lesser curvature (see Fig. 3). Surgical treatment was advised and the surgeon who operated in 1928 was consulted. He considered that the intra-abdominal condition encountered then was such that he was against further operation unless the obstruction became complete. The patient was sent home and under his own doctor. Twenty-five injections of histidine were given. During this treatment there was increasing improvement, and on completion an *x*-ray examination showed no sign of ulcer on the lesser curvature. There remained the deformity from the old operation, and partial obstruction (see Fig. 4). He stated that he felt better than he had done for years.

The above case is still a surgical one, but it is recorded here to illustrate the marked healing power of histidine, even in a case complicated by pyloric stenosis. So far the lapse of time since these cases were treated is too short to make dogmatic statements. One case has already relapsed, but it is interesting to note that only four injections have been necessary to effect again a clinical cure, and there is no radiological evidence of ulcer in less than three weeks' time.

A question that obviously arises is: If there is an absence of histidine, or a failure of its utilization, is cure at all likely to be permanent? It seems that some means of maintaining the supply of histidine must be considered, and that relapse will only be prevented by a continued administration either orally or by injection.

Treatment by histidine has some beneficial action, however that is brought about, and further trial and study are indicated.

FIG. 4.

Summary

1. A plea is advanced for greater co-operation in the quest for truth relating to peptic ulcer.

2. Treatment based on a new aetiological theory is indicated.

3. Criteria of diagnosis and case histories are detailed.

4. The method of treatment is stated and a synopsis of the results obtained is given.

5. The healing power of histidine is discussed, and an illustrative case is recorded.

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A NOTE ON CLOSED METHODS OF ANAESTHESIA IN THE SURGERY OF THE CHEST

BY

By JOHN HALTON, M.B., Ch.B.

HONORARY ANAESTHETIST, LIVERPOOL ROYAL INFIRMARY; VISITING ANAESTHETIST, KING EDWARD VII WELSH NATIONAL MEMORIAL, AND LANCASHIRE COUNTY COUNCIL SANATORIUM, HIGH CARLEY

Thoracic surgery demands from anaesthesia something more than the mere production of unconsciousness. The patient must arrive at the table in a quiet frame of mind; this must be accomplished, however, without recourse to excessive premedication, with its post-operative disadvantages. Next a quiet induction must be assured, and an anaesthesia of sufficient depth without anoxaemia in those whose pulmonary ventilation is usually below normal. Thus only can the surgeon be shown a quiet operating field and a patient who is not unduly distressed.

These ideals are approachable by various methods, more recently through the newer anaesthetic agents, cyclopropane and divinyl ether. Their administration by the closed method is essential, and while it would appear that they open up new fields and a nearer approach to the ideal, their use is still in the experimental stage. Nitrous oxide and ethylene, on the other hand, have proved their worth, and it is the use of these gases by the closed method which is the object of this note.

Action of Nitrous Oxide and Ethylene

1. Nitrous oxide and ethylene are respired unchanged, and produce their characteristic effect by simple oxygen displacement from the blood. Ethylene has a slight lipoid solubility, and gives, therefore, a 15 per cent. deeper anaesthesia.

2. Nitrous oxide 85 per cent., oxygen 15 per cent.; ethylene 80 per cent., oxygen 20 per cent.; are recognized as average gas quantities required in the production of anaesthesia, but with continuous or intermittent flow machines the gas percentages found in the bag are nitrous oxide about 75 to 80 per cent., carbon dioxide and oxygen in varying proportions making up the rest. With ethylene the oxygen percentage is slightly higher. Thus the addition of the expired carbon dioxide brings the levels of successful anaesthesia with no oxygen lack and anaesthesia with anoxaemia very close in those with normal pulmonary ventilation. In "thoracic" patients these levels often overlap. By the addition of premedication, local and regional anaesthesia and chloroform, a compromise can be reached. This, however, is at the expense of a slower recovery, and a heavier burden is thrown on the patient's metabolism in their elimination. The immediate neutralization of the carbon dioxide in the closed machine allows of a higher oxygen percentage being used, and if the depth of anaesthesia is insufficient, the smallest trace of chloroform or ether added to the gas and oxygen with positive pressure at once overcomes the difficulty.

3. With ethylene a greater percentage of oxygen can be used, but to offset this advantage its odoriferous and endothermic properties must be reckoned with, and also the fact that nausea of varying severity is common after its employment. The use of the closed method obviates the first drawback, and although a sufficient number of cases have not been considered as yet, it would appear that the closed method certainly reduces the third disadvantage. The explosion risk is, however, always present.

4. Finally, whatever gas is used for the anaesthetic, the same gas must be used to produce a positive pressure when required. This varies with each case and also with each stage of the operation. With the intermittent method this variation presents no difficulty, nor does it with the continuous flow machine unless an alteration in the percentage of the gases is also required ; then a good deal of rebalancing may have to be done with perhaps a loss of the necessary pressure when most vital. Whatever difficulties may arise by other methods they are non-existent when closed anaesthesia is used ; the intrapulmonary pressure is constantly gauged and is infinitely and immediately variable at a touch.

Choice of Method and Machine

Two types of apparatus obtain at present, using as the absorbing medium either soda lime or caustic soda in solution. One is the single phase in which the respired gases pass backwards and forwards through the absorbent, the other the double phase, in which the respired gases are valve-directioned and traverse the absorbing medium in one direction only. In practice the two-phase type, while possessing definite advantages, has been found to offer too great a resistance to respiratory excursion, a difficulty largely overcome in the uniphase machine.

In choosing the absorbent, both the above substances have points for and against their use. With $CaCl_3$ its granular form favours an easy portability and simplicity of apparatus, while a means of rapid replacement of exhausted material during operation time can be brought about. Against it there is the brevity of its useful life and the risk of dust escaping and lying free in the airways, a potent source of irritation to the respiratory passages. Its tendency to overdry the gases, the impossibility of accurately gauging the degree of exhaustion at any time, and a fairly high internal resistance in the apparatus used, are all points which must be considered as adverse factors.

NaOH used in solution produces no dust and can be readily tested for potency ; it does not dry the gases, and, weight for weight, has a longer life than $CaCl_3$ while having a more powerful affinity for CO_2. The chief disadvantage to its use is the caustic nature of the solution and the difficulty of keeping the apparatus clean from the resultant carbonate mud.

An apparatus using NaOH made for the writer by A. Charles King, and used over a period of twelve months, has circumvented the combined disadvantages of both methods while keeping their good points. Briefly, it is of the uniphase type, showing a very small internal resistance to respiratory excursions, the absorbing medium is under constant view, its potency is tested by specific gravity, and a means of replenishing exhausted solution is provided without interference with the progress of anaesthesia or the existing pulmonary pressure. Finally, the apparatus is so constructed that cleansing can be undertaken without dismantling.

Linking up Patient and Apparatus

The success of all closed anaesthetic methods depends on the production and maintenance of a gas-tight union between the patient and gas supply. Often this can be attained by means of a well-fitting mask and Clausen's harness ; in fact, in half the cases that come to the table this only is necessary. In others, where difficulty is experienced in the fitting of the mask or because of the demands of operative procedure, an intratracheal tube will be required with or without a supplementary suction tube. In these cases a small inflatable rubber bag fitting over a Mona Roberts airway is used to occlude the glottis after the tubes have been positioned.

Selection of Cases

From the anaesthetist's point of view cases for general anaesthesia automatically divide themselves into two classes practically irrespective of the operation to be performed. They are: the one, those with controlled sputum up to 25 c.cm. in twenty-four hours ; the other class, those with larger or smaller amounts of uncontrolled sputum—that is, patients who cannot completely empty their air passages by a combination of voluntary and postural coughing.

The first class demands no more than ordinary precautions, but it is with the latter that the crises are met, and, incidentally, it is often these cases which benefit most from surgical intervention. They are always a source of anxiety while in one's care, but two maximum danger periods are constantly found: the first occurs during induction, where a sudden cough followed by deep inspiration may cause aspiration of secretion into the sound lung, setting up complications varying from drowning to aspiration pneumonia at a later date ; the second period arises later, during the operation, when manipulation of the affected lung may bring about the same condition.

In these people the question of a preliminary bronchoscopic drainage must be considered for each individual. With a very debilitated or nervous patient the preliminaries may so tire his organism as to jeopardize the success of the main work. If endoscopy is decided upon it is preferably carried out under local or evipan anaesthesia, since the induction risk of general anaesthesia remains. It is appropriate here to mention the method of endobronchial anaesthesia advocated by Guedel and Waters[1], where the endotracheal tube fitted with an inflatable cuff is passed into the lumen of the main bronchus of the sound side. This is a fairly difficult procedure in the hands of an expert endoscopist, but cases are occasionally met with in which the intubation can assume the proportions of a major operation. From the surgeon's point of view, while he is assured that no migration of secretion can take place, he may be presented with a patient who is already in the first stages of shock. It is found by experience that McGill's two-tube technique will take care of practically every emergency, especially if preliminary bronchoscopy is resorted to in necessary cases.

Premedication

It is essential with thoracic cases that they should arrive on the table in a quiet mental condition, yet, on the other hand, it is as important that they should not have been so premedicated that a delayed return of essential reflexes will be shown post-operatively.

An almost perfect drug for this work has been discovered in evipan sodium, with its rapid effect and equally rapid elimination. Provided that a few essential points are borne in mind it is tolerated extremely well. It must not be administered in the presence of a low blood pressure or where other barbiturates have already been given. Its use in cachectic subjects is inadvisable, and care must be used where liver derangement is suspected.

The technique at present in use consists of bromidia on the night before to aid sleep, then one hour before operation 1/6 to 1/3 grain omnopon hypodermically. This is followed just prior to operation by sufficient evipan to allow of the introduction of the intratracheal tubes, or, when a mask only is to be used, by the minimum quantity required to produce unconsciousness. Cases which are considered unsuitable for evipan are given paraldehyde by the method advocated by Rowbotham.[2]

Induction

As has been indicated, the patient is brought to the table in an unconscious condition, and provided endotracheal intubation is not required the anaesthetic and operation proceeds. Should intubation be necessary it is advisable to introduce a dental prop before the administration of the evipan. He is on his back in slight Trendelenburg position, and the widest bore nasal tube possible is passed as far as the cords. It will be found that in most cases direct laryngoscopy will be necessary to guide the tube past the cords, as the reflex is still present. In some cases the cords and pyriform fossae may require cocainization.

The main tube having been passed, a gum-elastic coudé catheter is next passed through the mouth, the bend of the catheter being carefully noted; the eye should be directed towards the sound lung. After the tubes are in position the nasal tube is connected to the machine by means of an angle-piece fitted with an adjustable expiratory valve. Finally, the airway carrying the occluding bag is put in place and inflated, and the mouth tube is joined up to the suction apparatus.

Position

Experiments by Gale[3] show that vital capacity is least altered in the prone position, and if a slight Trendelenburg position is added to this a natural drainage of the lungs is possible with less danger of aspiration taking place. The arm and shoulder of the affected side are allowed to overhang the table, thus clearing the scapula from the site of operation. With cases operated on in this position the risks are certainly much less than with cases operated on with the sound side dependent. Coupled with this is the fact that the constant intrapulmonary pressure and the steadying of the sternum on the table reduce the risk of mediastinal flutter. It is, too, a simple matter to put the patient in this position after induction has been completed, care only being taken to see that the sound side is always uppermost and that excessive head and neck movements on the tube do not set up a spasm of coughing.

Minor Points in Technique

The form of suction employed is of little importance provided it is efficient. The writer uses a double-action foot pump made by A. Charles King, which has the advantage of being gas-tight and is capable of exerting a very powerful extractor action. Suction is only required intermittently, and naturally small amounts of gas must be run in to take the place of that removed by the pump. Care must be exercised, if work is being done with pressures much over 10 mm. Hg, that gas is not forced into the stomach owing to the pharynx being held open by the inflatable bag. It is advisable to leave the intratracheal tubes in position after the operation until the patient's reactions and type of breathing are considered satisfactory. Direct oxygen may be required for the first few hours, and possibly drainage.

Conclusions

The closed method of anaesthesia would appear to offer the nearest approach to an ideal in the surgery of the chest, as it gives a sufficient depth of narcosis with a quiet fully oxygenated subject and a rapid recovery.

The method is subject to certain technical disadvantages, but it is claimed that these have been to a large extent overcome.

With newer anaesthetic gases, because of their intrinsic properties and initial cost, its use is essential.

A technique has been indicated by which the risks attendant on (*a*) the conversion of the respiratory system into a closed circuit, and (*b*) thoracic surgery as a whole, have been to a large extent minimized.

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LOCALIZED NON-SUPPURATIVE ENCEPHALITIS OF OTITIC ORIGIN *

BY

J. B. HORGAN, M.B., CH.B., D.L.O.

CORK

Upon the basis of three cases personally observed and of three cases, in children, recorded by Adson of the Mayo Clinic under the title of pseudo-brain abscess, C. P. Symonds contends that a localized non-suppurative encephalitis constitutes a distinct intracranial complication of otitis media. The following case corroborates his view.

Case Report

A youth, aged 16, suffered from right suppurative otitis media since childhood. Otherwise his health was perfect.

May 23rd: Severe right-sided headache, vomiting, insomnia, anorexia, and diarrhoea.

May 25th: Admitted to hospital under the care of Dr. J. Dowling, Tipperary, who, owing to the patient's progressive deterioration and partial loss of consciousness, had him transferred to Cork on May 29th as a possible case of brain abscess. Upon examination I found that, though semi-conscious, the lad complained of pain about his right ear. A small amount of thick, fetid pus was found to be coming from a posterior superior marginal perforation in the otherwise intact right tympanic membrane. Fistula symptom was absent. Mastoid tenderness and cervical rigidity were absent. The left knee-jerk was exaggerated. There was hemiplegia of the left upper and lower extremities, with left lower facial paresis. The left plantar reflex was extensor. The left pupil was sluggish and dilated, the right normal. There was no papilloedema. Kernig's sign was doubtfully positive on the left side. There was slight evidence of bronchitis. Incontinence was present. Temperature 99.2° F., pulse 120, respirations 24.

May 29th: Complete mastoid operation with intentional removal of the tegmen antri and tympani. No plastic operation. No sutures.

May 30th: Hemiplegia more marked. Babinski and Kernig signs more positive. No rigidity. Spinal puncture. Fluid normal to tests. No growth on culture. Temperature 102°, pulse 112.

May 31st: Patient's condition deteriorating. Exploration of temporo-sphenoidal lobe from the mastoid wound in three directions with brain forceps; negative result. The lateral sinus and cerebellar dura were then exposed, the former occluded above and below by gauze plugs, and direct exploration of the cerebellum was undertaken with negative result. Temperature 99°, pulse 112.

June 1st: Spinal puncture. Fluid under moderate pressure, but otherwise again normal. Slow rotatory nystagmus to right, probably post-traumatic. Morphine freely used to control shouting and extreme restlessness. Temperature 99°, pulse 110.

June 2nd: Drinks refused. Trephination of right squamous temporal (1 inch). Crucial incision of congested dura. Cerebrum explored with expanding forceps in four directions, with negative result. Rectal salines. Morphine necessary. Temperature 100°, pulse 108.

June 3rd and 4th: Condition unchanged. Temperature 98°, pulse 100.

* Read before the Cork Clinical Society, May, 1935.

June 5th to 7th: Slight improvement in mental condition. Again taking drinks. Temperature 97° to 98°, pulse 60 to 80. Complained of severe headache, only relieved by morphine.

June 7th to 20th: Gradual improvement in all symptoms, natural sleep, incontinence ceased.

June 20th: Plastic operation to close retro-auricular wound.

July 21st: All paretic symptoms had disappeared. Ear dry. Returned home.

Commentary

From the pathological point of view I consider that I was justified in diagnosing the existence of brain abscess. The patient had advanced ear infection, with well-marked intracranial symptoms. Operation on the temporal bone had failed to remove these symptoms, and the other potential causes—namely, sinus thrombosis, meningitis, and labyrinthitis—could more or less definitely be excluded. A more possible explanation was otitic hydrocephalus, but in this affection, which usually occurs in childhood, there is invariably papilloedema, and the cerebro-spinal fluid is under greatly increased pressure, with normal cell count. The anatomical or localizing diagnosis was, to some extent, obscured by my inability to get any corroboration from the patient, to make even a rough examination of the visual fields, or to get a clear history of the case. The focal paretic symptoms above detailed were, however, definite enough to justify the supposition that an abscess or tumour of the right cerebral hemisphere involving the motor centres did in fact exist.

A positive diagnosis of non-suppurative encephalitis was finally arrived at by deduction after the existence of brain abscess had been disproved by actual exploration on two occasions and convalescence had actually set in. I would still find many aspects of the case inexplicable were it not that I am now aware of Symonds's work on this subject. He states that every brain abscess must be preceded by a stage of inflammation, exudation, and oedema, and suggests that, as in other tissues, this inflammatory process may become arrested and resolution take place without pus formation. He further points out that, owing to the difficulty in differentiation between this condition and true brain abscess, it is most important to remember its possible existence in those cases in which, like that described, exploration has had a negative result.

In two of the six recorded cases operation was not carried out, but eventual recovery occurred just as it did in the above case and in four other cases in which the brain was explored. I am, however, quite satisfied that in my case recovery could not have ensued without the radical removal of the mastoid disease, and that it was assisted by the decompression and exposure of the brain, if retarded by the cerebellar and cerebral exploration.

REFERENCE

[1] Symonds, C. P.: *Journ. Laryngol. and Otol.*, xlii, 440.

Clinical Memoranda

Cerebral Malaria or Encephalitis Lethargica?

I am recording this case as it is of interest in showing that some cases at least of encephalitis lethargica in India may masquerade as cerebral malaria. Few instances of encephalitis lethargica have been reported from India. I believe that this condition occurs in India sporadically almost as commonly as in this country, but passes off as malaria with cerebral manifestations. Some of the cerebral conditions described in the past as sequels to malaria—such as disorders of the mind, disorders of speech and vision—might be so many cases of unrecognized encephalitis lethargica.

CASE RECORD

The patient is a young man, aged 23 years, a private in the Army, who has recently returned home from India. In October, 1934, while in India, he had an attack of fever with headache and giddiness, for which he was in hospital for three weeks. This fever, as far as he knew, was diagnosed as cerebral malaria. The temperature was never very high, being about 102° F. After some three weeks' stay in hospital he was sent back. He never fully recovered from the effects of the fever, and was finally discharged from the Army and sent home.

The first thing that struck me on seeing him (April, 1935) was his rigid gait and slow, monotonous speech. He had a typical Parkinsonian mask. I examined him on several occasions, but never found any evidence of oculogyric crisis. On inquiry of his brother I was told that when the patient went to the cinema, and had stayed there some time, his eyeballs rolled upwards, and remained stationary until he came home and went to bed. The next morning the eyes were normal again. The patient's vision is normal; there are no alteration of the superficial and deep reflexes, no tremors, and no festinating gait. The skin appears definitely greasy.

From the account there cannot be any doubt that the patient is suffering from post-encephalitic Parkinsonism. In all probability the disease which occurred in India was encephalitis lethargica, and not cerebral malaria.

Kenfig Hill, S. Wales. P. K. GHOSH.

Erosion of Internal Carotid Artery with Fatal Haemorrhage

A few cases of haemorrhage from the internal carotid artery, invariably fatal, have been recorded in connexion with middle-ear suppuration. In almost every instance the middle-ear disease was long-standing, and necrosis of the wall of the carotid canal had occurred. The case here referred to was acute, and therefore may claim to be of great rarity. I saw the patient in consultation with Dr. R. O. Knowles of Birkenhead, and have his kind permission to make this report. Very briefly the facts are these:

X. Y., aged 6. On May 26th, 1935, a slight sore throat with feverish symptoms. In a day or two a glandular swelling appeared beneath the upper end of the sterno-mastoid on the left side. On May 28th pain in the left ear occurred, and early in the morning of May 31st a haemorrhagic discharge came from the ear. This continued during the day, but was not sufficiently free to arouse any misgivings. About 6 p.m. on the same day a sudden profuse haemorrhage occurred from the nose and mouth of such intensity as almost to choke the child in its effort to dispose of the blood. Incontinence with copious evacuation of blood per rectum occurred a little later. Profound collapse ensued, and the child died at midnight.

No post-mortem examination was made, but the following conclusions seem inevitable:

1. Death was due to haemorrhage from an erosion of the carotid artery, where it traverses the bony canal in the petrous bone.

2. Some developmental defect existed in the bony canal exposing a small area of the vessel wall in the tympanic cavity.

3. The acute otitis media caused softening and eventual rupture of the uncovered segment, which would, no doubt, share in the attenuation of the middle and outer coats experienced by arteries traversing bony canals.

4. Haemorrhage, at first slight and intratympanic, becoming torrential when the erosion increased in size and flooding the nasopharynx through the Eustachian tube.

Liverpool. COURTENAY YORKE, M.D., B.S., F.R.C.S.

Reviews

TREATMENT BY DIET

The lessons of the war and the problems of feeding whole nations under conditions where some or all varieties of foodstuffs may be difficult to obtain have led to renewed interest in dietetics. Within the last few years our scientific knowledge of vitamin content, mineral elements, and other constituents of food has increased greatly. Coincident with this advance, which has encouraged a more thorough appreciation of the use of properly selected foods in the promotion of health, a tremendous amount of misinformation and half-truths has been disseminated by food faddists. The application of the new knowledge to the treatment of disease has brought dietetics into the foreground again, and in a recently published book by Dr. BARBORKA[1] we are glad to welcome an excellent account of treatment by diet. The author points out that recent advances have emphasized the importance especially of the protein, mineral, vitamin, and caloric requirements. The customary daily ration for a man of 11 st. should be about 70 grams of protein, 230 of carbohydrate, and 135 of fat, giving about 1 gram of protein and 34.5 calories per kilo of body weight. These basic constituents would on an average contain sufficient vitamin and mineral elements and be accompanied by enough water to satisfy the required conditions.

In disease other factors have to be considered, especially the appetite and digestive capacity of the patient. Dieting comprises qualitative diets to meet the varied indications, and quantitative diets in which accurate amounts of some or all constituents are needed; the latter may be estimated quantitatively by rough household measures, or weighed carefully by balance and gram weights. The author deals seriatim with those diseases in which diet is of paramount importance. These are metabolic diseases, those of the blood-forming organs and of the digestive tract, and deficiency diseases. Of the latter there are not only those following vitamin deficiency such as occur in wars, in famines, or in institutions, but food deficiency in chronic disease, tetany, osteomalacia, iodine deficiency in simple goitre, and nutritional oedema.

In dealing with diabetes, the relative advantages of high and low carbohydrate are discussed. The author feels that the best procedure is to avoid the extremes and to adopt an intermediate plan—namely, moderate restriction of carbohydrates and proteins, giving a large enough amount to allow agreeable variety. The fats are used in amounts sufficient to meet the calorie requirements and to maintain the patient's weight slightly below normal. In this way the amount of insulin needed is restricted, and yet the diet does not inflict hardship on the patient by reason of unpalatability and satiety. These points are well illustrated in series of diets with varying carbohydrate and total caloric value. In this as in other sections the illustrative diets will be found most useful in clinical work. In gout the object of the diets cited is to restrict the calories and use a low-purine intake. This entails relatively low protein and a high carbohydrate diet, avoiding rich, seasoned foods, coffee, tea, and alcohol. The methods of the French school in which protein without purine content is used in considerable amounts with reduced carbohydrate intake are not mentioned. The sections on dieting in digestive disturbances, ulcer, diarrhoea, and constipation are sound and helpful. In a further series of diseases dieting is of varying importance, and should never be entirely neglected. Sample diets to meet different indications are given in detail, and these will be very useful in routine practice. For ordinary hospital use the author sets out and illustrates a series of six diets which will cover the various needs: non-residue, liquid, semi-solid, soft, light or bland, and general diets. These may be prescribed by the physician and the details left to a trained dietitian.

The book is written primarily for practitioners in the United States, and American authors are cited freely in the bibliography. For ourselves it is interesting to compare Barborka's book with the standard English textbook on dietetics by Hutchison and Mottram, which is not referred to by Barborka. The English book is scientific and sound on principles, the American, with its examples of detailed dietaries, is perhaps more immediately adapted to the needs of the busy practitioner.

[1] *Treatment by Diet.* By Clifford J. Barborka, B.S., M.S., M.D., D.Sc., F.A.C.P. Philadelphia and London: J. B. Lippincott Company. 1935. (Pp. 615; illustrated. 21s. net.)

EDEN AND LOCKYER'S GYNAECOLOGY

The fourth edition of this well-known and much-appreciated textbook[2] appears for the first time under the competent editorship of Professor BECKWITH WHITEHOUSE, who has successfully retained its characteristic features while incorporating recent advances in knowledge and practice. The arrangement of its matter is left under the old surgical classification of general, regional, and operative gynaecology. Its medical aspect thus continues to suffer from undeserved neglect.

Part I, entitled "Introductory," consists of three sections—on anatomy, on physiology, and on methods of examination. Under the physiology of the sexual cycle is given a clear and concise summary of present-day views, their fluid state being fully recognized by the absence of any tendency to dogmatism on the part of the editor. Part II, on general gynaecology, also consists of three sections—on disorders of development, on disorders of function, and on infections, the last including brief reference to the infections of the urinary and alimentary tracts. A curious place has been chosen for some new and useful matter on the practice of contraception, which appears under "disorders of function" and immediately after "sterility" and its treatment. The general review of infections, representing in part an effort of the original authors to overcome the objections to a regional classification, pays fuller attention than usual to obstetric infections, because "gynaecology has suffered in the past from the incursions of those who are not qualified by training to understand its clinical problems aright" (Preface, first edition). Part III, on regional gynaecology, forms the main part of the book, and is followed by Part IV on gynaecological diagnosis and treatment, which is largely new, and placed here for the sound reason that the interpretation of symptoms is better understood after a study of the conditions producing them. Part V, on operative gynaecology, ends with a section on after-treatment which is eminently practical as regards the bodily troubles that may complicate recovery, but ignores entirely the mental response that may sometimes wreck the result of an otherwise completely successful operation.

Throughout the book a broad outlook is taken, and the clinical and scientific aspects are well correlated, as exemplified in the sections on uterine haemorrhage and disorders of menstruation. The much-overused term "endometritis," for such conditions as the old hyperplastic form, in which the changes are now regarded as due to the persistence of ripening follicles and absence of lutein tissue in the ovary, is discarded for the newer "metropathica haemorrhagica." Its eradication from

[2] *Gynaecology. For Students and Practitioners.* By T. Watts Eden, M.D., C.M., F.R.C.P., F.R.C.S., F.C.O.G., and Cuthbert Lockyer, M.D., B.S., F.R.C.P., F.R.C.S., F.C.O.G. Fourth edition, edited by H. Beckwith Whitehouse, M.B., B.S., Ch.M., F.R.C.S., F.C.O.G. London: J. and A. Churchill, Ltd. 1935. (Pp. 964; 619 figures, 36 coloured plates. 38s.)

gynaecological nomenclature, as advocated in America, is not adopted, and criteria are given for the conditions in which its retention is justified. A simple adenoma of the endometrium is also described under new growths, because there is no evidence of either inflammation or abnormal ovarian function having any part in its causation. There is obviously much to be learnt before the differentiation of these endometrial states is finally established. The relative merits of operative and radiological methods are judicially discussed in regard to cancer of both cervix and corpus uteri.

The repute of this book as a work of reference for the specialist and a standard textbook for advanced students has been fully maintained. But among so much regional gynaecology the tendency is to lose sight of the woman as a whole, with her varied reactions to interference with her reproductive system, to its functions, ordered and disordered, and her adjustments thereto. More of the human touch is needed nowadays if the application of science to practice is to be presented in due perspective.

UROLOGY

Urology has become such a vast subject, the methods of examination are so complicated, and the operative technique is so exact that a doubt arises whether our present-day knowledge can be profitably compressed into a single volume. The work[3] by Drs. EISENDRATH and ROLNICK is an admirable attempt to achieve such an end. It is clear, accurate, and concise. Every word is of importance, and there is no repetition or unnecessary elaboration. At the same time we could wish that the authors had given more space to pathology and symptomatology. Everything they say on these subjects is accurate, but the descriptions are somewhat curtailed, probably through want of space. It is also a moot point whether the opening chapters, which deal with the embryology, anatomy, and physiology of the genito-urinary organs, would be better omitted, and the space thus gained devoted to enlarging the sections on pathology and symptomatology.

A word of praise must be given to the illustrations. There are fully seven hundred of them, and all are good. The authors have not relied solely on their own material, but have drawn extensively on illustrations which have appeared in the American and Continental literature. This is an advantage, because only the best have been reproduced. They are also to be congratulated on reducing the size of their reproductions as much as possible without interfering with clearness. In this way they have been able to keep the size of their volume within reasonable limits.

The work is divided into seven sections. The first is introductory and deals chiefly with methods of investigation; the second is devoted to venereal diseases. The next four deal respectively with diseases of the male genitalia, the bladder, the ureter, and the kidney, and the book ends with one on operative technique. There are a few rather strange omissions, which probably arise from the fact that this is the third edition of a work appearing a few years ago. For example, though intravenous urography is described in the chapter on radiography, it is not mentioned when dealing with renal tuberculosis, and only receives passing notice in the chapter on renal calculus. Yet these are the two conditions in which it has proved of greatest value. It is also strange to find that total cystectomy is not described, and that resection of stricture is not even mentioned. Both these operations have come to stay, and will probably be practised extensively in the future.

[3] *Text-Book of Urology. For Students and Practitioners.* By Daniel N. Eisendrath, M.D., and Harry C. Rolnick, M.D. Third edition, revised. Philadelphia and London: J. B. Lippincott Company. 1935. (Pp. 942; 700 figures, 11 in colour. 42s. net.)

There are numerous cross references, which have the advantage of avoiding repetition, but it is a pity that the authors do not insert the page, especially when referring the reader to an illustration in a different section. It is also unfortunate that they are not always accurate. It is disconcerting to be referred to a non-existing chapter, and annoying to search for an illustration only to find that its number is incorrectly given and the reference is in consequence useless.

CLINICAL PATHOLOGY

There is no doubt that a need exists for a small handbook on clinical pathology, and to a certain extent the book under this title[4] by Dr. WILLIAM SMITH meets the need. It gives a serviceable description of when and how to collect pathological specimens and a brief but satisfactory account of many of the tests used in clinical pathology. As a guide to the side-room work of a ward the book will fill a useful place, but the compass is too restricted for it to be of much value to the practising pathologist. If an opportunity occurs for further revision such mistakes as the following should be corrected. "It was not until about 1880 that the first organisms were seen under the microscope" (page 9). "They [the cocci] multiply by budding" (page 9). "Toxins are substances produced by organisms in the body" (page 11). On page 13 *B. acidophilus* is classed among the Gram-negative bacilli. The presence of *B. proteus* in the urine has no special significance as an indication of malignant disease (page 21). There are also many irregularities in construction which often introduce a ludicrous effect, as in the following sentence from page 14: "Fingers, pricked whilst preparing such articles as rabbits for cooking, have been the cause of streptococcal infections." However, despite minor defects in detail and in expression, the book will serve a useful purpose because of the practical things in it and because of its handy size.

NINETEENTH CENTURY SCIENTISTS

J. G. CROWTHER'S *British Scientists of the Nineteenth Century*[5] contains descriptions of the discoveries and life-histories of Davy, Faraday, Joule, Kelvin, and Clerk Maxwell. In making this selection from among the physicists of the nineteenth century the author had in view the intention of illustrating the relation between the scientific work of the century and the social characteristics of the time—a relationship displayed more clearly in the field of physical science than in that of biology and other sciences, owing to the intimate connexion between physics and the growth of industry. According to the author the relationship is very distinctly in evidence in the case of Sir Humphry Davy. Davy showed the way to the scientific industrial society of the nineteenth century. He was the first to explain adequately the importance of science to society, and he began the task of systematically introducing scientific method into all forms of industry. Faraday's contribution to science was greater, but his scientific superiority was gained at the expense of a limitation of cultural spirit. The struggle for the establishment of science as an integral part of civilized production and culture was won by Davy; he established the social necessity for science, and Faraday proceeded along a route whose importance was already accepted. The humble origin of Davy and Faraday had some remarkable scientific results. For example, in the

[4] *Clinical Pathology, and the Technique of Collecting Specimens.* By William Smith, M.A., M.D., B.Chir. London: J. and A. Churchill, Ltd. 1935. (Pp. 158; 47 figures. 5s.)

[5] *British Scientists of the Nineteenth Century.* By J. G. Crowther. London: Kegan Paul and Co., Ltd. 1935. (Pp. 332; 13 photographs. 12s. 6d. net.)

whole of their works there is not a single algebraical or chemical formula. They were entirely outside the mathematical tradition of the universities of the English governing classes. This tradition was founded before industrialism had become dominant, and was not assimilated to the needs of industrialism until the middle of the nineteenth century. The sociological meaning of the apparition of Kelvin and Clerk Maxwell at that date was, in the opinion of the author, that the British industrial bourgeoisie had captured the universities. Interesting as these sociological observations are, it is probable that most readers will find more attraction in the author's vivid character sketches, and more particularly in the very complete enumeration and description of the discoveries of the five physicists, which form the main portion of his book. The volume contains good portraits of the scientists, and at the end of each chapter is a bibliography which will be useful to those wishing to study the subject in greater detail.

Notes on Books

The fourth edition of Miss M. A. GULLAN'S popular *Theory and Practice of Nursing*[6] will prove as useful as its predecessors. The comparative brevity of the volume has always been an attractive feature, and its object—to develop intelligent understanding on the part of the nurse as to why she has to perform certain duties—is well fulfilled. In contrast the *Textbook of Nursing Technique*,[7] by M. L. VANNIER and B. A. THOMPSON, now in its second revised edition, consists almost entirely of "recipes" for carrying out various nursing procedures without any assumption of intelligence on the part of the nurse. To apply a mustard plaster the nurse must work through a numbered list of instructions running to nearly two pages (with three references to literature at the end). This is apparently how things are done in Minnesota, and the potential patient, choosing his nurse from a perusal of these two volumes, will undoubtedly ask for one from St. Thomas's.

An English edition of the *Chinese Medical Directory* for 1934 has been prepared by H. P. CHU for the Chinese Medical Association (Shanghai: 41, Tze Pang Road), and has been checked by Dr. James L. Maxwell. Here will be found an account of the various medical institutions, societies, and organizations in China, as well as an equally up-to-date list of medical practitioners in China, with their degrees and qualifications. There is much useful information about the regulations in force in respect of medical, dental, and veterinary practice; midwives; pharmacists; proprietary medicines; and the importation and sale of narcotics. A brief account is given of the development of the Chinese Medical Association, the central field health station of the National Economic Council, the National Quarantine Service, and the National Epidemic Prevention Bureau. The volume is thus much more than a directory; it comprises a survey of European and American medical work in China, and will be welcomed in three continents as a valuable book of reference which discloses how much modern scientific work is being carried on over so vast an area.

The first volume of the forty-fifth series of *International Clinics* (J. B. Lippincott, 50s.) consists of three parts, dealing respectively with medicine, surgery, and recent progress in medicine and surgery. The first section contains the following ten papers: ketosis and the ketogenic diet in epilepsy and urinary infections, by R. M. Wilder and H. Pollock; the significance and treatment of auricular fibrillations, by W. D. Stroud and L. B. Laplace; insomnia, by H. M. Winans; a review of thirty-five selected cases of syphilis of the stomach, by L. C. Pusch; the red blood cell of man, by R. L. Haden; management of so-called blood diseases, by J. H. Musser and D. O. Wright; gall-bladder diseases, by W. L. Palmer; treatment of diabetes mellitus, by H. F. Root; calcium and disease, by V. R. Mason and L. Gunther; and Addisonian anaemia and carcinoma of the stomach in the same individual, by T. G. Miller. The surgical papers deal with the significance of menopausal haemorrhage with special reference to carcinoma, by C. C. Norris; post-operative pulmonary embolism, by L. R. Wharton; surgical conditions associated with Meckel's diverticulum, by A. H. Montgomery; one year's experience with the Anderson splint, by W. A. Steel and J. N. Grossman; and experimental production of acute alcerative gastritis by parenteral administration of atophanyl, by H. Hanke. The article on progress in medicine, by A. Cantarow, is confined to a discussion of cholesterol metabolism, while that on progress in surgery, by T. W. Goodwin and D. C. Balfour, is more general in scope.

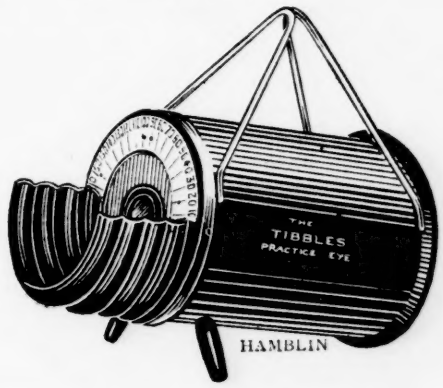
[6] *Theory and Practice of Nursing*. By M. A. Gullan, S.R.N. Fourth edition. London: H. K. Lewis and Co., Ltd. 1935. (Pp. 258; 3 coloured figures. 9s. net.)

[7] *A Textbook of Nursing Technique*. By Marion L. Vannier, R.N., and Barbara A. Thompson, R.N., B.S. Second edition, revised. Minneapolis: University of Minnesota Press. 1935. (Pp. 266.)

Preparations and Appliances

MODEL EYE FOR RETINOSCOPY

Dr. SYDNEY TIBBLES (London, W.1) writes: The accompanying illustration is of a model eye for the teaching and practice of retinoscopy, which Messrs. Theodore Hamblin of 15, Wigmore Street, W.1, have kindly made for me. It is emmetropic, but has the advantage that any possible error of refraction, including astigmatic conditions, can be made by simply placing lenses in front.



The errors can be correctly estimated by lenses of an opposite kind—namely, a +10 D sphere, placed in front, causing −10 D of myopia, needs a −9 D sphere to neutralize the light from the retinoscopy mirror at 1 metre and a −10 D sphere for distance.

Hypermetropia, and simple, compound and mixed astigmatisms can be similarly produced, and the corrections found can be checked against the lenses used to cause the errors.

AN IMPROVED THROAT SWAB

Mr. JOHN A. G. SWAN (Technician, Pathological Department, Richmond, Whitworth, and Hardwicke Hospitals, Dublin) writes: A trial of throat swabs put up for use in the following manner has shown them to be more convenient, cleaner, and more economical than those in ordinary use.

The swab-stick is of pinewood, as already used by many institutions. These sticks are supplied by most instrument retailers, in boxes of seventy-two dozen. In place of the customary cork or cotton plug a half-inch length of rubber pressure tubing is used. Tubing of 3/8-inch diameter with a bore of 3/32 inch has been found the most satisfactory size for use with the customary tubes, measuring 5 inches by 1/2 inch with 1/16-inch wall. The rubber pressure tubing may be obtained at a retail price of approximately 9d. per foot, one foot making two dozen corks. It bears sterilization very well, and corks at present in use have retained their elasticity unimpaired in spite of being autoclaved on ten occasions in 2 per cent. lysol at twenty pounds pressure.

THE OSTEOPATHS BILL

ADVERSE REPORT BY SELECT COMMITTEE

The Select Committee of the House of Lords appointed to consider the Regulation and Registration of Osteopaths Bill presented its report at the end of last week, and this is obtainable as a White Paper (No. 130) from H.M. Stationery Office (price 1d.).

The report states that the committee occupied twelve days in its inquiry, in the course of which it examined twenty witnesses. Full accounts of the proceedings appeared in the *British Medical Journal* of March 9th, 16th, 23rd, and 30th, April 6th, 13th, and 20th, 1935. Before the evidence of those opposing the Bill had been concluded the supporters of the Bill intimated that they did not desire to ask the committee to recommend that it should be proceeded with. The committee, however, conceived it to be nevertheless its duty to report in detail to the House.

The reasons given by the supporters of the Bill for asking for its withdrawal were (*a*) that they desired what they considered to be the scientific basis of osteopathy to be further explored, and (*b*) that they could not properly ask for a measure which required for its full operation the granting of powers to the British School of Osteopathy, the present constitution of which the principal supporters did not approve.

The principal object of the Bill was stated to be the protection of the public against the practice of osteopathy by incompetent or unqualified persons. Counsel, in opening the case for the Bill, argued that it would be sufficient for him to establish (*a*) that osteopathy is extensively practised, and (*b*) that the public in large and increasing numbers are desirous of being treated by this method. On these hypotheses he asked the committee to deduce that Parliament should authorize the establishment of a State register for osteopaths, with a prescribed qualifying education and standard of proficiency; in fact, to accept the Bill in principle.

CONDITIONS TO BE FULFILLED

In all comparable cases of vocations for which a statutory register has been authorized, the Select Committee finds that three conditions have been fulfilled: (1) the sphere or territory within which the vocation operates has been clearly defined; (2) the vocation has already long been in general use; and (3) there has been already in existence a well-established and efficient system of voluntary examination and registration. The establishment of a State register, moreover, not merely protects the public from the unqualified practitioner, but gives the guarantee of Parliament that persons of the class proposed to be registered are within their own sphere worthy, and the only persons worthy, of the public confidence. Instances (besides the *Medical Register*) are the registers of dentists, pharmacists, midwives, and veterinary surgeons. The province of each can be clearly defined, the practice of each is universal, and each was in a state of efficient voluntary organization at the time when the statutory register was established.

FAILURE OF OSTEOPATHS TO FULFIL CONDITIONS

In the case of the osteopathic calling, the report states, none of these conditions can be said to be fulfilled, for the following reasons:

1. No definition of osteopathy was included in the Bill as introduced, and although one was subsequently proposed for inclusion in the Bill, and others suggested, none emerged which satisfactorily differentiated the osteopathic sphere of activity.

2. The practice of osteopathy, though widespread in the United States of America and Canada, is carried on in the United Kingdom by not more than two to three thousand practitioners, of whom only about 170 can claim to be "qualified." It is practically unknown on the Continent of Europe.

3. The only existing establishment in this country for the education and examination of osteopaths was exposed, in course of evidence before us, of being of negligible importance, inefficient for its purpose, and above all in thoroughly dishonest hands. Pending the setting up of any adequate machinery in this country, therefore, the only training ground for the qualified osteopath would be North America, and it was pointed out by the representative of the Ministry of Health that "it is alien to the general principles which have so far been followed in comparable legislation to recognize qualifications which are conferred by foreign educational institutions."

NATURE OF OSTEOPATHIC TREATMENT

Since the establishment of a statutory register would give something in the nature of a "hall-mark" to osteopathy, the committee inquired at some length into the nature and value of osteopathic treatment. It emerged clearly that osteopathy is not—as is popularly supposed—a craft or art limited to the treatment of maladies or defects of the bones, joints, muscles, ligaments, etc., by manipulation; in this sphere the committee has no doubt that qualified osteopaths perform valuable services. They may even possibly be regarded as having at one time developed a technique in advance of medical science, which has been to some extent accepted by members of the medical profession who practise what is called "manipulative surgery." Osteopathy, however, claims to be a method of healing which is suitable for the treatment of *all diseases of any description*.

> As the law stands, anyone is entitled to practise the art of healing, but only registered medical practitioners are entitled to hold themselves out as duly qualified to treat all diseases. Were the present Bill to pass, registered osteopaths would be entitled to make a like claim. It is true that, on no logical principle, provisions were proposed for insertion in the Bill excluding osteopaths from the right to perform "major surgery," to practise midwifery, to administer anaesthetics, and to give certificates of the cause of death; but neither of the distinguished practising osteopaths who gave evidence before us would recede in any way from the full claim of osteopathy to treat all disease.
>
> It is hardly necessary to point out the far-reaching nature of this claim, involving as it does the statutory recognition of two alternative, and to a great extent conflicting, theories of healing. Dr. Kelman Macdonald explained his views as to the scientific basis upon which the osteopathic theory reposes, and the committee would wish to pay a tribute to the ability and sincerity of this witness; but Dr. Macdonald is actually a registered medical practitioner, and whilst he clung to the formulae on which osteopathy is based, it was clear that in actual practice he would not deny his patients, where necessary, the benefit of appropriate medical or surgical treatment.

The committee accepts the claim that cures are frequently effected by osteopathic methods. On the other hand, there have been some failures, as with other methods of healing. The committee has not been in any considerable degree influenced by evidence either of cures or of failures.

CLAIMS NOT ESTABLISHED

The committee finds on the evidence before it that the claim of the osteopaths to be able to treat all diseases as set out in the Bill has not been established, and that it would not be safe or proper for Parliament to recognize osteopathic practitioners as qualified, on a similar footing to that of registered medical practitioners, to diagnose and treat all human complaints. Further, the committee is of opinion that the question of establishing a register of qualified osteopaths by Act of Parliament should in any case be deferred until the sphere of osteopathy has been defined and a system of education in the principles and practice of osteopathy has been developed in this country in one or more well-equipped and properly conducted institutions.

The Select Committee, in view of the considerations set out in its report, has ordered that the Osteopaths Bill be reported to the House of Lords without amendment, and it recommends that the Bill be not further proceeded with.

British Medical Journal

SATURDAY, JULY 27th, 1935

INDUSTRIAL HYGIENE

The report of the Chief Inspector of Factories for 1934[1] runs on the usual lines, though it has special features not included in most previous reports, such as a return showing the distribution of factories according to size, and a section dealing with noisy industrial processes. The report is not so reassuring as those of recent years, for it reveals a considerable increase in industrial accidents. There were no fewer than 136,858 reported accidents, or 21 per cent. more than in 1933, while the fatalities, 785 in number, were 14 per cent. more numerous. The rise is due only in part to the greater number of workers employed, for it appears that re-employment after a long spell of unemployment involves the workers in an extra accident risk, until they again become accustomed to their work. The Chief Inspector draws special attention to the considerably larger accident frequency shown by young persons than by adults. He suggests that much good would result if children who are taught at school about road-traffic dangers were also warned about industrial dangers. When first starting work at a factory they ought, as a routine measure, to be shown the risks of approaching transmission machinery in motion, and of interfering with guards. Again, dangerous machines capable of inflicting severe injury should not be entrusted to new workers. The workers should be specially kept under observation during their first year, and those of them found to be "accident-prone" transferred when possible to safe occupations. Safety organizations are being gradually developed in several fresh directions—for example, by the appointment of carefully selected workmen as "safety associates" for a period of three months. One large chemical works held 268 meetings of their various safety committees in the year, and they received over 2,000 suggestions from the workers in connexion with safety matters. Of this number 28 per cent. were acted upon and granted awards.

The Senior Medical Inspector, Dr. J. C. Bridge, contributes a long and interesting chapter on health. He maintains that, though industry does produce ill-health in certain instances, it is outside the factory that most of the ill-health arises. Doctors often give vague sickness certificates such as "gastritis due to employment," when little or no investigation has been made to ascertain how far employment was responsible. Dr. Bridge suggests that it would be much better if the practitioner suspecting that an illness was due to employment would communicate with the Factory Department of the Home Office. As a matter of fact, he is in many cases ignorant of the existence of such a department, and Dr. Bridge hopes that some day the medical curriculum will include a few lectures on industrial diseases.

As might be expected from the rise in employment, the cases of industrial poisoning and disease notified to the inspectors are rather more numerous than in the two preceding years. Lead-poisoning cases, both fatal and non-fatal, showed an increase averaging 16 per cent., pottery workers and painters in the building trade showing the greatest increments. Epitheliomatous ulceration is now a more important cause of death than lead poisoning, and in 1934 it accounted for 45 fatal and 125 non-fatal cases. Striking evidence of the value of remedial measures was obtained by calculating the percentage of deaths to reported cases, for it appeared that there is a direct relation between the death rate and the establishment of a periodic medical examination of the workers exposed to risk. Of the 1,671 cases of industrial skin cancer recorded between 1920 and 1934, 288 related to patent fuel workers, who are constantly in contact with pitch and tar, and it was found that their mortality rate was only 3.5 per cent. This low figure is attributed to the periodic medical examination which almost all of the men undergo; but pitch and tar workers in gas works, where a large number of the sufferers are not brought to the notice of the medical inspectors until a fatal issue has been reached, showed a mortality rate of no less than 49 per cent. Workers in tar distilleries, where periodic examination is gradually becoming the rule, showed the intermediate mortality rate of 9 per cent. In the cotton industry there were 719 cases among mule spinners and 121 among other workers, the causative agent being mineral oil. The mortality rate was 32 and 58 per cent. respectively, and it is a significant fact that medical examinations in the cotton industry have never been instituted, with one or two exceptions. Apparently the trade is hoping that research work will discover a non-carcinogenic oil which can be substituted for the highly carcinogenic oils now employed. Dr. Bridge points out that, however valuable such a discovery may be in preventing the disease in future workers, many cases will continue to arise for years to come as a result of past conditions, and it is these persons for whom early diagnosis and treatment is so desirable.

Dust diseases such as silicosis, asbestosis, and the associated tuberculosis are probably responsible for more fatalities than all the other notified causes of industrial poisoning and disease put together, for no fewer than 121 deaths in which they were involved came to the notice of the Department during the year. A table is given in the report relating to the 643 fatal cases notified in recent years, and it indicates that the inhalation of asbestos has a much more rapidly fatal issue than that of silica. The asbestos workers affected died after an average period of ten to thirteen years' employment, but the silica workers only after thirty-two to

[1] Annual Report of the Chief Inspector of Factories and Workshops for 1934. London: H.M. Stationery Office. Cmd. 4931. (2s. net.)

thirty-five years. Most of the silica workers were employed in the pottery industry and in sandstone grinding, but a few were employed in sandblasting, and this industry appears to be even more dangerous than the asbestos industry. Dr. Bridge therefore emphasizes the desirability of substituting a non-siliceous abrasive, as he did in his last year's report. He points out that steel grit and shot have been successfully substituted in some instances, and he thinks that they could be used in others, if applied properly. The asbestos industry has now been subject to the new regulations relating to the removal of dust by efficient exhaust ventilation for three years, and there can be no doubt that the improved methods greatly reduce the workers' risk.

Of the numerous other subjects referred to in the report, one of the most striking is the use of eyeglasses with prism lenses by employees engaged in very fine work (linking hosiery). At one firm nearly a hundred workers are now supplied with these glasses, and they found that in consequence their eyes felt quite fresh at the end of the day's work, in place of being strained, while headaches were prevented. The lighting of factories has not, in general, kept progress with the improvement in other factory conditions. In the clothing trade, for instance, the workers in many factories are exposed to severe glare, even when there is a good supply of high-power lamps.

THE OSTEOPATHS BILL REPORT

On April 20th last (p. 832), immediately upon the conclusion of the meetings of the House of Lords Select Committee appointed to consider the Bill for the Registration and Regulation of Osteopaths, we published a leading article commenting upon the situation. We set out there the main points which seemed to have been disclosed or established by that inquiry, and expressed the hope that the Select Committee would report simply that the Bill should not be proceeded with further, and that the Committee would refrain from attaching to its report any suggestion favouring any additional official investigation of osteopathic claims such as had been asked for by the promoters of the Bill. The publication of the Committee's report has unfortunately been delayed by the illness of the Chairman, Lord Amulree, but it was at last issued a week ago. It is an extremely satisfactory report. Not only does it recommend that the Bill "be not further proceeded with," but the Committee is satisfied that its "conclusion is sound" without the need for any more inquiry, and it bases the conclusion upon the very points to which we directed the attention of our readers.

The report is more emphatic and outspoken than might perhaps have been expected from the composition of the Select Committee, which included, it will be remembered, at least three convinced and avowed supporters of osteopathy and advocates of the osteopaths' claims as they understood them. The inquiry has certainly proved educative both to those members of the Select Committee and to the public. The Committee "felt it their duty to inquire at some length into the nature and value of osteopathic treatment. . . . It emerged clearly that osteopathy is not—as is popularly supposed—a craft or art limited to the treatment of maladies or defects of the bones, joints, muscles, ligaments, etc., by manipulation. . . . . Osteopathy claims to be a method of healing which is suitable for the treatment of all diseases of any description." The Committee finds that this claim "has not been established, and that it would not be safe or proper for Parliament to recognize osteopathic practitioners as qualified, on a similar footing to that of registered medical practitioners, to diagnose and treat all human complaints." It found, moreover, that in spite of various attempts, no definition of osteopathy was suggested which "satisfactorily differentiated the osteopathic sphere of activity"; that the actual practice of osteopathy was negligible outside North America and was practically unknown on the continent of Europe; that "the only existing establishment in this country for the education and examination of osteopaths was exposed as being of negligible importance, inefficient for its purpose, and, above all, in thoroughly dishonest hands"; that osteopathic qualifications, therefore, must perforce be of American origin, and that the Committee had no evidence as to the standard of education of osteopaths in North America.

The Committee goes even further than this by important, though almost incidental, pronouncements. It says "the establishment of a State register not merely protects the public from the unqualified practitioner, but gives the guarantee of Parliament that persons of the class proposed to be registered are within their own sphere worthy, and the only persons worthy, of the public confidence. Instances (besides the medical register) are the registers of dentists, pharmacists, midwives, and veterinary surgeons." The Committee adds, therefore, that the establishment of a register "would give something of a hall-mark to osteopathy," and would involve "the statutory recognition of two alternative, and to a great extent conflicting, theories of healing." Thus the claim of the osteopaths is deliberately and very emphatically rejected alike on scientific, on educational, and on administrative grounds. It is important to note, too, that there was a carefully prepared body of evidence, especially on the scientific side, which was not presented to the Committee owing to the precipitate abandonment of the Bill by its promoters.

In the leading article on April 20th we suggested certain conditions which should be fulfilled before any further inquiry into this subject would be justified. They were the establishment in this country of an osteopathic school with some semblance of efficiency associated with a hospital (not a clinic) of reasonable size, the passing of a number of students through a full course thereat, and the presentation to some scientific body of satisfactory prima facie evidence. The Select

Committee says something of a like kind. We are not in the least afraid of these conditions, for they can never be satisfied. The findings of the present report, moreover, are such that the matter may reasonably be regarded as at an end, at least so far as the present generation is concerned. The prompt and efficient action of the Council and medical secretaries of the British Medical Association in this matter received deserved recognition at the meeting of the Representative Body, as will be seen from the full report of the first two days' proceedings in our *Supplement*. The action of the House of Lords in giving the Bill a second reading and referring it to a committee before which counsel were allowed to appear was quite unexpected and unprecedented ; but the case on behalf of the whole medical profession in all its aspects was admirably prepared, co-ordinated, and presented, and it may be recalled that among the witnesses were the new President-Elect of the Association (Sir Farquhar Buzzard), the Chairman of the Representative Body, and the late Chairman of Council. The services of this *Journal* were also suitably acknowledged, and attention was again drawn to the full reports of the twelve sittings of the Select Committee which appeared in our columns from March 9th to April 20th last. In this week's issue we print the report of the Select Committeee substantially verbatim (p. 166). These are records which will remain of permanent value, and their issue in a collected form for future reference may perhaps be considered.

CONTROL OF HAEMORRHAGE IN JAUNDICE

The tendency to bleed unduly is a source of serious danger after operations on jaundiced patients, and it is not effectively controlled by any measures hitherto proposed. A new treatment for this condition suggested by McNealy, Shapiro, and Melnick[1] will be welcomed on this account, and all the more because it is extremely simple and interesting, if not altogether clear in its theoretical basis. The treatment is the pre-operative administration of vitamin D. This should increase the absorption of calcium and raise the calcium content of the blood ; but this explanation is not considered by the authors to account wholly for the effects obtained, since there is evidence, which they quote perhaps too briefly, that the vitamin is concerned in promoting efficient coagulation by means other than its influence on calcium metabolism. It has also been shown recently that bile is necessary in the alimentary tract for the absorption of vitamin D, a fact which would account for an actual deficiency in jaundice. The clinical trial of this method has depended for control on a new procedure for estimating the tendency to bleed. In an accompanying paper by Ivy, Shapiro, and Melnick,[2] existing methods of determining coagulation and bleeding times are said to be untrustworthy guides to the behaviour of operation wounds in jaundice, and emphasis is laid on the capacity of the capillaries to retract rather than on the purely humoral factors involved in coagulation. The new method, which is referred to as the " Ivy bleeding time," consists in determining the duration of bleeding from a puncture 2.5 mm. in depth when a sphygmomanometer band is applied above at a pressure of 40 mm. Hg: a normal result is 180 or, rarely, up to 240 seconds ; but higher figures are obtained in jaundice even when ordinary bleeding times are normal. A prolonged Ivy bleeding time is said to be a certain indication of risk from haemorrhage ; if the time is normal, pre-operative treatment is unnecessary. If the time is prolonged it can be brought to normal by the administration of viosterol (vitamin D). This treatment has been used and studied in 810 miscellaneous cases, including many types and causes of jaundice, and without entering into detail it may be said that the desired effect seems to have been obtained chiefly in cases of obstructive jaundice. which is tantamount to saying those in which surgical intervention is likely to be indicated. The post-operative course in patients whose Ivy bleeding time has been reduced by viosterol administration has satisfied the authors that this change does reflect an increased capacity of the tissues to arrest haemorrhage. A thorough trial both of this method of testing bleeding time and of treatment in jaundice with vitamin D is to be recommended.

[1] *Surg., Gynecol. and Obstet.*, 1935, lx, 785.
[2] Ibid., 1935, lx, 781.

DRUG ADDICTION IN INDIA

Lieut.-Colonel R. N. Chopra has for many years made a special study of the problems of drug addiction in India, and in a recent article[1] has given an interesting summary of the existing situation and the methods of treatment of addicts. He begins with the remark: " Although in India drug addiction has existed on a more extensive scale than in any other country in the world, with the exception of China, little is known regarding the problem." He points out that in India both opium eating and opium smoking are prevalent, and that the hemp drugs are used extensively. Besides these, alcohol, cocaine, chloral hydrate, and even the barbiturates are taken as drugs of addiction. The earliest drug of addiction recorded is the juice of the soma plant, which was the delight of the Aryan settlers ; but what this plant was no one now knows. Mohammedans introduced opium, and at the time of the Mogul Empire opium, cannabis, and alcohol were all in use. Moreover, very potent concoctions were employed—for example, the " four-leaved " drink of Akbar's court contained wine, opium, Indian hemp, and poppy capsules. The opium habit is not general, but is prevalent only in certain districts, and the total number of Indian addicts is about one and a half millions. The habit is decreasing, since the annual opium consumption has fallen from 1,000,000 to 400,000 lb. during the last twenty years. The administration of opium to infants to keep them quiet whilst the mother is at work is one of the most pernicious aspects of the problem. Hemp addicts are estimated at one or two millions, but here also the annual consumption has been halved since 1912. The figures from one asylum showed that about 20 per cent. of the patients had been hemp addicts. Alcohol in the form of native beers has long been drunk in India, but

[1] *Indian Med. Gaz.*, 1935, lxx, 121

distilled liquors, which are taking the place of opium and hemp in some areas, are evidently on the increase. The cocaine habit has become established around Calcutta, and large quantities (estimated as 200,000 ounces annually) are smuggled from the Far East. The source of this supply is generally suspected, but is not mentioned by the author. Colonel Chopra a few years ago reported a curious new drug habit in North India—namely, the taking of chloral hydrate as a cheap intoxicant instead of alcohol—and he mentions that barbiturates are now being employed for the same purpose. He states that the magnitude of the problem of drug addiction in India is best indicated by the fact that, whereas in most of the countries in Europe and America the addiction rate of the population is from 0.1 to 0.2 per cent. or less, in many provinces in India the rate is 1 to 3 per cent. or more. The article concludes with an interesting review of the methods of treatment of the various forms of drug addiction. One new and surprising remedy is the production of a blister and the hypodermic injection of the blister fluid. The results obtained by this treatment in opium addiction are stated to be striking. The rationale of the method is still obscure.

PNEUMONIA FROM ASPIRATION OF OIL

Of late years there has been growing an extensive literature on the subject of what is sometimes termed "lipoid pneumonia," and to a certain extent a scare has been created about the use of oily nasal applications and other medicaments for the upper respiratory tract in young children. A survey of the subject, with a good account of clinical, pathological, and experimental findings, by K. Ikeda[1] presents a more balanced point of view. It is clear that the disorder is more or less limited to debilitated, artificially fed infants not much more than a year old. Of the seven new cases reported in the present monograph five had either mechanical or nervous difficulties in swallowing (hare-lip, cleft palate, hydrocephalus, spastic quadriplegia, receding jaw), and regurgitation of food, vomiting, choking, or gagging was noticed in most of them. Cod-liver oil, liquid paraffin, and oil instillations for the nose had been given to most of the babies. In some of them either food or one of these medicaments was administered by forcible methods, so that aspiration might well have taken place during a struggle. The clinical course is that of recurrent attacks of what *x*-ray examination reveals as a central bronchopneumonia extending from the lung roots into the parenchyma. The microscopical picture of the lungs is held to be diagnostic, especially as regards the presence of macrophages, containing fine globules of the offending oil. Experimental evidence suggests that on the whole vegetable oils may be considered inert and harmless, probably because no hydrolysis takes place in the lungs. On the other hand, animal oils tend to undergo hydrolysis with the liberation of fatty acids which provoke an inflammatory reaction. Mineral oils, while not undergoing hydrolysis, act as foreign bodies, with the rapid appearance of consolidation and fibrosis. As a rule, infants infected in this way recover from each attack of bronchopneumonia, and under proper management the general health improves, although there may be some residual pneumonic damage. The seven cases here reported came to light in a consecutive series of 101 necropsies over a period of three years, and, as already indicated, the subjects were debilitated and presented pathological difficulties in swallowing. In addition, there was evidence—as, for example, in the recurrence of impetigo in some of them—that their resistance was low. It may be assumed, therefore, that while lipoid pneumonia does occur, it is only a very remote danger attendant on the use of oily medicaments. Whether there is a safer vehicle than liquid paraffin or vaseline for intranasal instillations or not might well be considered in the light of the experimental evidence now available.

[1] *Amer. Journ. Dis. Child.*, April, 1935, xlix, 985.

BIOCHEMICAL TESTS

Biometricians have dreamed that in time to come it will be possible to assess a man's state by relating him to various physical, physiological, and psychological standards and measures, so that his functional capacity may be described with mathematical exactitude. Before such a time arrives it will be necessary to have at least a sufficient number of observations to make an average standard measure to which the figures for the individual may be related. Messrs. Obermer and Milton[1] have brought together a series of tests which may be carried out with the minimal trouble to the patient investigated, and with a considerable degree of accuracy. The methods chosen are mostly those in general use, adapted, where possible, for photo-electric determination of the end-point. The densitometer enables tests to be carried out rapidly with minute quantities of material and with elimination of the personal factor of the observer, provided the instruments are reliable and the calibration is very carefully made. The "patient" is required to take his customary diet, but to weigh the ingesta carefully for the whole of one twenty-four-hour period and to place a portion of every article of food in a separate labelled bag. The urine and faeces passed are collected and samples of blood taken from finger and vein. One-twentieth of each article of food ingested is taken; these are mixed and analysed for total solids, protein, fat, carbohydrates, and chlorides. The urine and faeces are subjected to the usual examinations. On the blood it is projected to carry out quantitative tests for chlorine, glucose, haemoglobin, iodine, water content, and bicarbonate reserve, as well as estimations of chlorides, urea, phosphorus, cholesterol, proteins, and non-protein nitrogenous constituents. The amount of blood required for these tests is about 100 cubic centimetres, and not all patients would be willing to allow this. The organization of the laboratory to carry out these tests efficiently and rapidly is described, and it is no small thing: the amount of glassware needed must be colossal. No tests of functional capacity are considered, such as the ferments, tolerance of carbohydrates, and eliminative capacity of liver and kidneys.

[1] *Individual Health. A Technique for the Study of Individual Constitution and its Application to Health.* Vol. i, *Biochemical Technique.* By E. Obermer and R. Milton. London: Chapman and Hall, Ltd. (15s. net.)

Perhaps these are reserved for further volumes. That a single estimation of the blood constituents can have much value is doubtful, since the blood is the last portion of the body to feel the effects of deprivation or excess of water, saline substances, or even nitrogen. The authors are setting themselves an enormous task with a courage that is almost foolhardy. It would be admirable if we could think it likely to be of value.

THROMBOSIS AND EMBOLISM

The proceedings of the German Society for Research on the Circulation, which met last year at Bad Kissingen, were very largely given up to the problems of thrombosis and embolism.[1] In the opening address Professor Aschoff discussed the aetiology of spontaneous thrombosis. He suggested that in the case of femoral thrombosis it is not so much the slowing of the blood stream as the nature of the slowing—eddies, the meeting of the slow streams, and so forth—that decides whether or not thrombosis occurs. Another factor that favours the development of thrombosis in old age is the general widening of the venous channels that takes place in the course of time. Any great increase in the blood platelets seems to be associated with liability to thrombosis. Most important are the blood factors, more so than the endothelial. Kuch described the effects on the right side of the heart of experimental pulmonary embolism. First there is dilatation, which is followed by venous stasis. Later, the congestion disappears and hypertrophy develops. In a general discussion Miruwitz pointed out that liability to thrombosis depends on haemic and vascular factors. In some cases one sort prevails, and in some the other. Nürnberger, reviewing the subject in gynaecological and obstetrical cases, thinks that small thromboses are better recognized than formerly. Prophylaxis and treatment seem to offer very little new. Havlicek finds that irradiation of the operation area with ultraviolet light is useful in preventing thrombus formation. Little was said on the most interesting modern aspect of thrombosis: that of the coronary arteries. It is evident from the account of this meeting that very little is really known on the subject. The factors in the vessel wall are clear enough in some cases; what actually leads to the formation of the thrombus seems to be quite obscure; much more knowledge on the colloidal chemistry of the blood may be needed before this is understood.

COMMON POISONINGS

The *Canadian Public Health Journal* for May contains an interesting symposium on the forms of accidental poisoning likely to be encountered in general practice. Dr. V. H. Stock deals with the toxic symptoms that may be produced by common drugs given in therapeutic doses. Bromides, iodides, and the organic arsenicals are among the examples chosen of drugs whose power to produce unpleasant side actions has long been known. Amidopyrine has recently achieved notoriety as a possible cause of agranulocytosis. The author points out that proprietary preparations containing this compound are used extensively to relieve pain during the menstrual period, and hence it is a considerable potential danger. The use of another popular analgesic, cinchophen, is associated with a similar danger in that it occasionally produces toxic jaundice. Di-nitrophenol is an even more dangerous drug, and the author states that in Canada it is still sold to the general public without prescription in alarming quantities. It is used for "slimming," but also appears to produce slight euphoria. Dr. A. R. Riddell describes certain of the commoner forms of industrial poisoning. Lead, silica, chromium, and arsenic are well-known industrial poisons, and the author also mentions briefly the effects of benzene as an example of the large group of volatile solvents that have come into industrial use during the past decade. Drs. J. R. Ross and A. Brown describe poisonings common in children. Strychnine, carbon monoxide, atropine, and mercury are the commonest causes of poisoning in children in Toronto. The usual history is that the child has taken large quantities of compound purgative tablets containing aloin, belladonna, strychnine, and cascara (A.B.S. and C.). The strychnine contained in these chocolate-coated tablets is the cause of one-quarter of the total cases of poisoning in children under 5 years of age in Toronto. Refinement of methods of diagnosis has shown that chronic lead poisoning in children is commoner than had previously been recognized. The sources of the lead are various, but the chief one in Canada is the nibbling of lead paint on cots, pens, window sills, etc. It is of interest to note that the dust from lead paint on verandas in Australia has caused similar trouble. The authors recommend that Canada should follow the example of France and prohibit the use of lead-containing paints for children's toys and furniture and for interior work.

ALCOHOL AND ROAD ACCIDENTS

In February last the Minister of Transport invited the British Medical Association to say whether it could usefully make any observations on the place of alcohol in the causes of road accidents. A special committee was thereupon appointed by the Council to consider this subject, with Dr. W. G. Willoughby as its chairman. The committee, which included physiologists, a neurologist, a pharmacologist, police surgeons, physicians, and general practitioners, set to work with all dispatch, and drafted a report for submission by the Council to the Minister of Transport. By authority of the Council, and with the Minister's consent, this report is published to-day in our *Supplement* at page 57. It will be seen that the committee confined itself to an examination of the scientific evidence on the effect of the consumption of alcoholic liquor on the functioning of the human body. In particular, it studied the effects of amounts of alcohol insufficient to produce the state commonly recognized as drunkenness, and smaller than those likely to lead to a person being certified as "incapable of proper control of a vehicle." The report is a short one, and the committee's findings speak for themselves without need of embellishment.

[1] *Verhandlungen der Deutschen Gesellschaft für Kreislauffor-schung.* Edited by Professor Dr. Eb. Koch. Dresden and Leipzig: T. Steinkopff. (RM. 15.)

TREATMENT IN GENERAL PRACTICE

This article concludes the series on the management of some cardio-vascular disorders met with in general practice. A further series, on the treatment of diseases of the nervous system, will begin early in September.

THE ELECTROCARDIOGRAM IN PROGNOSIS AND DIAGNOSIS

BY

A. HOPE GOSSE, M.D., F.R.C.P.

The writings of the electrocardiograph are still in an unknown language to many practitioners, yet the reading of it is easily acquired, for its alphabet is confined to five letters, and one of these, Q, is little used.

The Normal Electrocardiogram

Auricular contraction alone causes the P wave, known as the auricular complex, and ventricular contraction alone causes the QRST waves, known as the ventricular complex. (See Fig. 1.) The space between any two adjacent perpendicular lines on the electrocardiogram represents an interval of 1/25 of a second. The normal interval of time between the beginning of the auricular complex P and of the ventricular complex R is 1/5 of a second or rather less. An interval of over 1/5 of a second shows a delay in conductivity known as heart-block of slight grade.

An electrocardiogram is a record of the shadow thrown by the oscillations of a galvanometer fibre connected by wires and electrodes to a patient and projected on to a moving photographic film. There are usually three lines corresponding to the three leads. The top line, Lead I, is a record of the movements of the fibre when electrodes on the right forearm and left forearm are connected by wires to the upper and lower ends of the fibre respectively. In Lead II the electrodes are applied to the right arm and left leg, and in Lead III to the left arm and left leg.

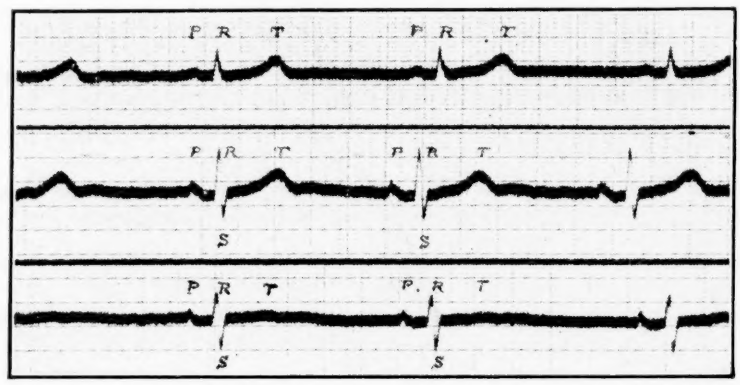


FIG. 1.—A normal electrocardiogram. The P waves are caused by auricular contractions and the RST waves by ventricular contractions.

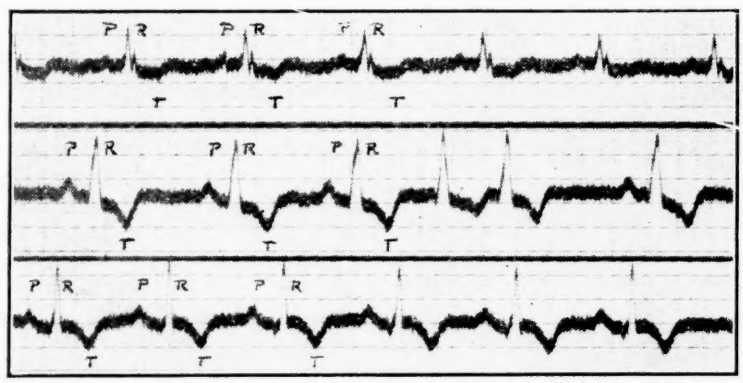


FIG. 2.—An abnormal electrocardiogram due to coronary thrombosis. The T waves are inverted in all leads.

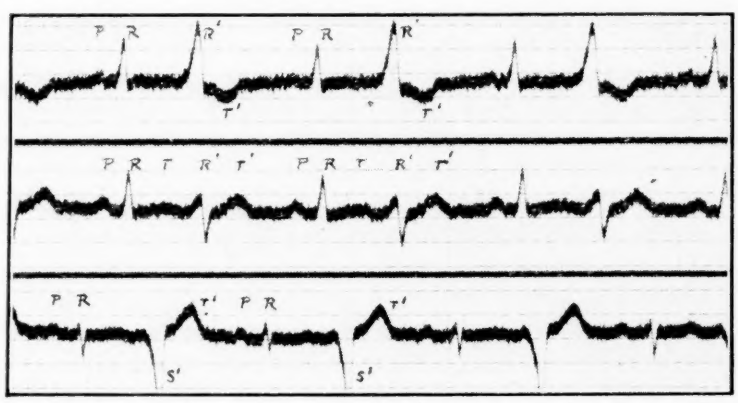


FIG. 3.—Premature ventricular contractions. In each lead a normal beat PR or PRT is followed by a premature beat R'T' or S'T'.

Coronary Thrombosis

At the present time the greatest value of the electrocardiogram lies in its aid to the satisfactory diagnosis of coronary thrombosis. There are numerous departures from the normal record in this disease, and any one, or more, of the following changes may be found:

1. RT and ST intervals are not iso-electric (Pardee's sign)—that is, the T wave rises high on the down stroke of R or low on the up-stroke of S.

2. There is an inversion of the T wave in Lead II accompanied necessarily by an inversion in either Lead I or Lead III (Fig. 2).

3. Sometimes inversion of the T wave in Lead I only. Inversion of the T in Lead III alone is very seldom of pathological significance, and is often a feature of healthy hearts.

4. Widening of the QRS interval to 3/25 of a second, or more, is due to depression of conduction through the main branches of the auriculo-ventricular bundle, a condition known as bundle-branch block (Fig. 6).

5. Very occasionally a PR interval of over 1/5 of a second with or without dropped beats, due to partial heart-block.

6. Complete heart-block with an auricle (P wave) beating at about 80 and a ventricle (RST waves) at about 30 beats per minute (Fig. 5).

7. Almost any of the irregularities of rhythm, particularly auricular fibrillation (Fig. 4) and paroxysmal ventricular tachycardia.

The complications of coronary thrombosis are so often fatal that the prognosis may be said to depend, primarily, on its accurate diagnosis. There are few outstanding or common features of the electrocardiogram which definitely foreshadow either a fatal or a favourable result. The exceptions are those showing the features of either 4, 6, or 7 above, any one of which is an added danger.

It should be realized that angina pectoris—that is, angina of effort—does not give any abnormal electro-

cardiogram in most of the patients who are victims of it. This serious heart disease must be recognized and diagnosed on an analysis of symptoms. Graphic support for the diagnosis should be regarded as accessory evidence when abnormalities are present.

The Arrhythmias

The irregularities of the heart or pulse can be accurately differentiated by electrocardiograms. In children the commonest irregularity is sinus arrhythmia. It is characterized by an increase of rate during inspiration and decrease during expiration. It is often a striking feature of convalescence after an acute infection, when the heart is still slow before the child is getting up again. Its presence after an attack of acute rheumatism was for long considered to be evidence that the heart had escaped infection, but this is not a correct prognostic deduction, for it can be present after the heart-block of rheumatic myocarditis. The presence of sinus arrhythmia should never be regarded as of any pathological importance.

The commonest irregularity in adults is, of course, the premature beat or "extrasystole," so often described by the patient as a "dropped beat." Its abnormal ventricular complex can be easily recognized as distinct from all other waves. The safest prognostic significance of this beat is to exclude it entirely from being considered of ill omen. (See Fig. 3.)

Auricular fibrillation is by far the commonest of the irregularities associated with heart disease. The absence of the P wave and the continuously irregular rhythm are diagnostic. There is little help in prognosis to be obtained from the electrocardiogram after it has established the diagnosis. The more rapid the rate, uncontrolled by digitalis, and the larger the heart the less favourable is the prognosis (Fig. 4).

Auricular flutter has a characteristic electrocardiogram, as the abnormal P waves occur at a rate of about 300 to the minute; the ventricular complexes are much less frequent and in varying ratios. The lesion is relatively uncommon. It can seldom be diagnosed clinically. It is a rather more serious condition than fibrillation, into which it sometimes, indeed often, changes.

Partial heart-block can only be satisfactorily diagnosed by an electrocardiogram. The PR interval is over 1/5 of a second and may be over 2/5. Its presence in acute rheumatism, about 25 per cent. of cases, is clear evidence of rheumatic myocarditis, and is of prognostic significance. The second degree of heart-block, characterized by dropped beats, is quite rare. Complete heart-block is usually a degenerative myocardial change. Rarely paroxysmal, it is most often established for life, and the condition is present not uncommonly for many years of useful life. Often it is erroneously thought to be a syphilitic lesion, but such is only rarely the correct view (Fig. 5).

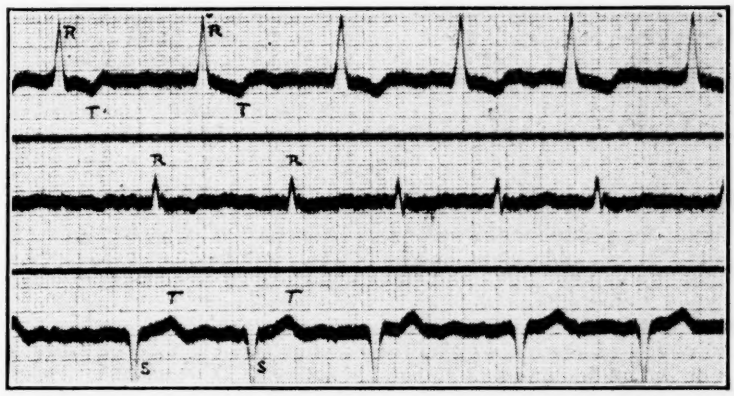


FIG. 4.—Auricular fibrillation. There is an absence of the normal P wave in all leads, and the rhythm is continuously irregular. The high R in Lead I and the low S in Lead III also indicate left ventricle preponderance.

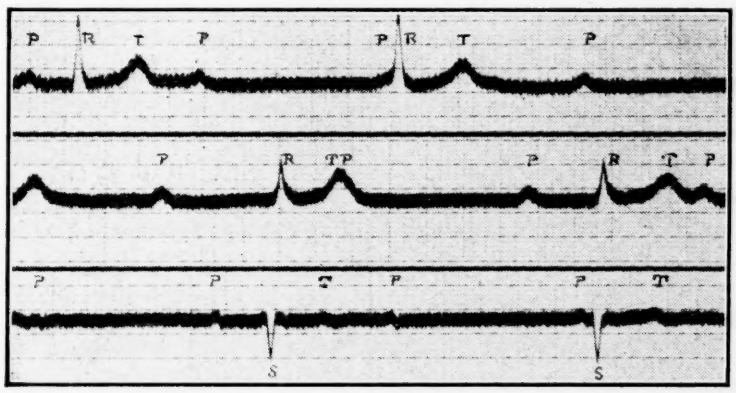


FIG. 5.—Complete heart-block. The auricles, P waves, are beating at a rate of 60, and the ventricles at a rate of 33 to the minute.

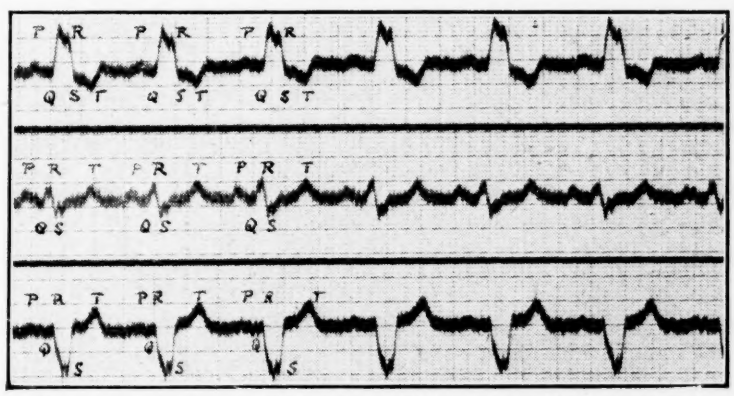


FIG. 6.—Bundle-branch block. The QRS interval is widened to 3/25 of a second in all three leads.

Bundle-branch block has a characteristic electrocardiographic appearance (see Fig. 6). The QRS in all or some leads is 3/25 of a second or more. It is not very common, but sometimes reveals the seriousness of the cardiac condition when symptoms are only suspicious of a cardiac lesion or physical signs are disarming. From a prognostic point of view it is of great importance. While it is true that a few patients live comfortably for years with this lesion, it is more often associated with a sudden, and otherwise unexpected, death than any other single electrocardiographic finding.

The pathological condition of pulsus alternans has no characteristic electrocardiogram. Sometimes there is alternation of the heights of the R wave in the electrocardiogram when there is alternation of the pulse, but more often there is no such precise evidence of this condition.

Cardiac Murmurs

The diagnosis of the exact type of valvular disease in a patient derives but little or no assistance from the electrocardiogram. In aortic disease there is a high R in Lead I and a low S in Lead III, characteristic of left ventricle preponderance; the same changes also occur in hyperpiesis and commonly in the middle and later years of life. Mitral disease shows the reverse picture, with a low S in Lead I and a high R in Lead III, characteristic

of right ventricle preponderance ; the same changes may appear in pulmonary disease. The graphic record can, however, be of definite help in assessing the value of a mitral or other systolic murmur. The absence or presence of preponderance suggests its functional or its organic nature respectively.

THE ROYAL SANITARY INSTITUTE

CONGRESS AT BOURNEMOUTH

The scientific work of the annual congress of the Royal Sanitary Institute at Bournemouth from July 15th to 20th was arranged in six sections: preventive medicine ; architecture, town planning, and engineering ; maternity, child welfare, and school hygiene ; veterinary hygiene ; national health insurance ; and hygiene in industry. In addition, there were conferences of representatives of sanitary authorities, medical officers of health, engineers and surveyors, sanitary inspectors, and health visitors. Some of the more salient pronouncements were as follows.

IMMUNIZATION OF THE COMMUNITY

Addressing a joint meeting of the Section of Preventive Medicine and of medical officers of health on some aspects of herd immunity, Professor W. W. C. TOPLEY distinguished the two types of immunity—the type which was dependent on the social or biological structure of the herd (exemplified by the British immunity to plague, malaria, typhus, and enteric) and that type which was determined by the individual immunity of some or all of the herd members resulting from natural infection or artificial immunization. Reporting the results of investigations on mice colonies, he said that immunization against enteric infections had proved disappointing, but the environmental conditions probably accounted for the results being so different from those obtained by the T.A.B. protective immunization in the war. In the case of the virus disease ectromelia, however, immunization had raised the expectation of life to 85 per cent. of the normal, even though resistance had not been raised to the point where the mice became entirely indifferent to infection. In influenza, now recognized as a virus disease, there were at present two strains of virus being propagated in ferrets and mice. Professor Topley thought it would not be long before it became possible to immunize effectively against this infection, and that this achievement would rank as one of the major victories of preventive medicine. In whooping-cough again, although the reports were conflicting, it appeared to be probable that an effective vaccine for prophylaxis would soon be available, though it was as yet too soon to envisage a compaign of wholesale immunization. There must first come a stage of field trials, conceived in a frankly experimental spirit ; even though this presented special difficulties to the administrator, it must be regarded as the most important link in the chain which led from observations in the laboratory to successful prophylaxis in the community. Wherever else the methods of experimental epidemiology might fail, they at least permitted the putting of any prophylactic reagent to a trial so severe that any reagent which proved effective under the test conditions might be relied upon to prove effective in the field.

EXPERIMENTAL AND FIELD EPIDEMIOLOGY

Following this address, Dr. DUNSTAN BREWER, medical officer for Swindon, dealt with the biological aspects of parasitic diseases, classifying them in four groups: those which were always present in the community (pneumococcal and streptococcal infections) ; those which appeared intermittently though the parasites were always present (influenza and diphtheria) ; those which were normally absent from the community though the parasites were always present (amoebic dysentery, poliomyelitis, cerebrospinal fever, and the typhoid infections) ; and those which were normally absent and the parasites were also normally absent (plague and cholera). In such a case as human plague a chain of events was necessary ; the rats and fleas must be of the correct species in happy environment and symbiosis, the human hosts must be susceptible to Pasteurella, and the last-named be suitable to the host. The dominance in this country of the brown rat broke the chain, and while this was so it was unlikely that an outbreak of plague could ever occur. Variability of the parasites in virulence was probably an important factor, and another was the occurrence of mass infection. Such problems in the biology of parasitism would have to be cleared up before progress could be made in the prevention of disease. In this country at present the two reigning diseases were those due to pneumococci and haemolytic streptococci, and Dr. Brewer thought that light on our knowledge of epidemics would come from the study of migratory locusts. There was a herd immunity which was different in character from personal immunity and not dependent on it. It might be that there was some occasional element in herds which prevented from time to time the production of a disease which was prevalent elsewhere.

VENEREAL DISEASE AND MATERNITY AND CHILD WELFARE

Dr. VIOLET RUSSELL, ante-natal medical officer, Kensington, read a paper before the Section of Maternity, Child Welfare, and School Hygiene, in which she urged the necessity of having a routine Kahn or Wassermann test made in the case of all women attending ante-natal clinics in the early months of pregnancy. This might well succeed in almost eliminating congenital syphilis in this country. Blood examination could also be utilized in the much-needed campaign against the prevalent anaemias of pregnancy. By associating these two tests the objections of many patients might be quietly overcome. If a syphilitic reaction was obtained the test should be repeated, and a second positive reaction should be followed by specific treatment at the venereal diseases centre, or possibly at some of the infant welfare centres at special sessions. Treatment should be repeated at the subsequent pregnancies. The possible relation of gonococcal infection with puerperal sepsis might be elucidated by having the gonococcal complement-fixation test performed on every case of puerperal fever in the isolation hospitals. The appropriate ante-natal treatment of gonorrhoeal infection greatly reduced the risk of sepsis after confinement.

Dr. D. NABARRO, dealing with venereal disease in children, said that in the last ten years there had been a very considerable reduction in the incidence of cases in infancy, possibly owing to the maternal treatment in clinics before parturition. Routine Wassermann tests should be enforced at ante-natal clinics, as should adequate treatment. It should be legally possible to enforce the continued attendance for treatment of congenital syphilitic patients for as long as might be necessary. When a child had been proved to have contracted syphilis or gonorrhoea from a source other than its parents, the medical practitioner should be permitted to communicate the facts to the local medical officer of health, with a view to preventing the possibility of further dissemination from that source. Miss M. D. HEARN, assistant almoner in the venereal diseases department of St. Thomas's Hospital, described the important work performed by the social worker in regard to mothers and children suffering from venereal diseases. Great assistance in securing attendance for treatment could be given by the sympathetic and understanding social worker, to whom the patient could go for the oft-needed mental relief and advice.

CARE OF THE MOTHER IN INDUSTRY AND RURAL DISTRICTS

Dr. J. J. PATERSON, medical officer of health for East Berkshire, reviewed the work of the League of Nations in this connexion and the conditions obtaining abroad. The international conventions on the employment of women and expectant mothers had done an immense amount of good in opening the eyes of State authorities, especially in countries wrecked by the war, to the duty owed to

mothers. Voluntary work, apart from that of religious sisterhoods and industrial institutions, was rare outside Great Britain. On the Continent reformative legislation preceded the enlightenment of public opinion, and good legislation was rather slow, therefore, in producing its intended benefits fully. Another impediment was the political and economic uncertainty on the Continent and the ever-haunting fear of war. Dr. Paterson concluded that the cold, stern efficiency of an up-to-date State-provided Continental maternity hospital savoured too much of robot mechanization to satisfy the psychological needs of the parturient woman, and these needs were perhaps even more important than the physical or physiological.

Mrs. E. A. WALKER of the Industrial Welfare Society reviewed the working conditions in this country as they affected woman workers. There was some need of a provision under the Factory Acts to limit the maximum load. The enormous development of light industries since the beginning of the century was absorbing increasing numbers of women for repetitive operations, and physiological investigation was called for in this respect as regards the possibility of health impairment. Beyond the requirements of the Factory Acts there had been an extensive development of welfare amenities by individual firms, which had been most beneficial, and was influencing industrial progress. Miss G. B. CARTER, organizing secretary of the Midwives' Institute, discussed the work of the country nurse in rural districts, and suggested possibilities of better administration. Public health services could not be well rounded off or fully used until it was realized that they were complementary to social activities. The local authorities should plan and foster women's institutes and improved bus services as carefully as it supervised the water supplies.

FUTURE OF THE SCHOOL MEDICAL SERVICE

In the Section of Preventive Medicine Dr. O. M. HOLDEN urged the extension of the school medical service to include research work: the child's environment should be studied as carefully as its nurture and heredity. School medical officers ought to be consulted more frequently by local authorities as regards the planning of school buildings and their equipment. The present examination system required overhauling and reconsideration from the health point of view.

Dr. H. HERD criticized the present system of medical examination of school children, stating that it gave little or no opportunity for a continuous study of the individual child, and took little account of its functioning at work and at play. Tests of physiological fitness might be very valuable in the assessment of doubtful cases, and, when some degree of standardization had been reached, might be applied in the school medical service. Dr. Herd added that his suggestions involved the disappearance of routine medical inspection as at present understood. More frequent visits by medical officers would be necessitated, and children be brought under a more continuous supervision. There should be more teaching about general health habits and diet.

Dr. W. M. ASH said that the statistical requirements needed revising, and the inspection of children should be made more scientific. It was possible and desirable to extend the National Health Insurance Acts to include the domiciliary treatment of children attending public elementary schools. Physical culture should receive more attention, with special regard to the devising of exercises more on anatomical principles and arranged to bring into use those groups of muscles which tended to lack exercise. Child guidance should be given a more prominent place in the work of the school medical service.

HEALTH RESORTS

At a conference of representatives of sanitary authorities Dr. ALFRED COX dealt with the health resort as a part of the public health service; Dr. H. GORDON SMITH discussed the influence of nature on health, and Dr. G. R. BRUCE surveyed the relation of medical baths to health resorts. Dr. Cox said that the rich endowment of health resorts in this country was officially ignored, although it offered the best and most economical way of restoring health to large numbers of people for whom health authorities were directly or indirectly responsible. There should be direct recognition and supervision of them by the Ministry of Health, enabling them to develop their great natural advantages. Dr. Gordon Smith contrasted the special benefits provided by spas, inland health resorts, and coastal centres. Dr. Bruce reviewed the varieties of medical baths, and said that such establishments provided by health resorts should not compete but be co-ordinated with the recognized spas. Some system should be evolved for making medical baths available to the working-class population of the district, visitors of this class, and patients in convalescent homes. Reasonable standards of equipment might thus be reached, including the selection of cases for treatment by the medical man in charge of the bath and the supervision and assessment of results by the general practitioner concerned with the patient.

MEDICAL OFFICERS IN INDUSTRY OVER-SEAS

CONFERENCE IN LONDON

A meeting was held at the Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, on July 9th, to discuss the advisability of holding an annual conference at the School to enable medical officers in industry over-seas, when on leave, to meet together and review their various problems. Professor W. W. Jameson, dean of the School, was in the chair, and the meeting was attended by Drs. A. L. Hoops and R. E. Anderson (Malaya); B. A. Lamprell, H. C. Berlie, and J. Ogilvie Gordon (Assam); C. D. Newman (Assam-Bengal Railway); J. Walker (Gold Coast), and Major H. Lockwood Stevens (Organizing Secretary of the Ross Institute).

The meeting was unanimous in the opinion that the London School of Hygiene and Tropical Medicine would be rendering a useful service in affording an opportunity to medical officers in industry to use the Ross Institute as their headquarters when on leave and to meet together for the discussion of matters of professional interest.

The proposed conference will not conflict in any way with that which is arranged by the British Medical Association in connexion with its Annual Meetings, where matters of medico-political interest to oversea practitioners are dealt with specially. The discussions which it is suggested might with advantage take place at the London School deal with the more practical and scientific side of professional work over-seas.

It was agreed that, at first, a conference lasting one day should be held in the beginning of July each year, and that, if possible, invitations to attend the conference should be issued through the medium of the British Medical Association and the various industrial associations. It was decided also that any Government health officers home on leave from over-seas should be invited to attend, and that the conference should be kept as informal as possible so as to allow of free discussion of any subject put forward by the medical officers present.

A new edition of the *Handbook of Tuberculosis Schemes* is now ready and on sale at 5s. post free from the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, W.C.1. This book forms a complete directory of tuberculosis work throughout the country. Each administrative area in England, Wales, Scotland, Channel Islands, Northern Ireland, and the Irish Free State is dealt with separately; such details as general and tuberculosis death rates, provision for treatment under the tuberculosis schemes, and the administrative staff are included. The handbook forms the only published list of tuberculosis officers, and the only complete list of residential institutions for tuberculosis.

England and Wales

Salaried Midwives Service for London

The Hospitals and Medical Services Committee of the London County Council, following upon the report by the Joint Council of Midwifery on the desirability of establishing a salaried service of midwives, is proposing to the L.C.C. that the recommendation of the Joint Council be supported—namely, that a municipal salaried whole-time midwives service should be introduced in all areas not already adequately served by salaried midwives. At present three metropolitan borough councils have, under the Maternity and Child Welfare Act, appointed municipal midwives ; one council has an arrangement whereby midwives from a voluntary hospital attend recommended patients, another has an agreement with three hospitals to provide a full midwifery service, and ten, by subsidies to voluntary associations or on the application of the patient, make provision for the assistance of necessitous maternity patients who engage midwives. The Hospitals and Medical Services Committee agrees as to the urgent need of a salaried midwives service adequate to provide for the large class of expectant mothers who normally are, and can quite well be, confined in their homes. It is believed that such a service would materially assist the efforts to reduce maternal mortality and morbidity rates. It is considered that it would be reasonable that any scheme like that recommended by the Joint Council should at the outset be limited to the provision of enough salaried midwives to meet the needs of the class of patient now attended at home by a midwife in private practice. The total number of confinements so attended in London is estimated, on the basis of statistics for 1933, at 12,706. At the rate of eighty births for each midwife (the number recommended by the Joint Council) the number of midwives required would be 158, or, excluding 2,088 maternity nursing cases, 133. The estimated cost might be taken as £39,500 for the larger number or £33,250 for the smaller. It is not considered that the L.C.C. should agree with the Joint Council's recommendation that certain classes of midwives should be compensated as an inducement not to practise, and that others should be retired from practice in return for a pension payable out of public funds. No recommendation is made by the Joint Council for a grant from Government funds, but it appears to the L.C.C. committee appropriate and essential that the establishment of such a national service should be assisted from the national exchequer.

The Poet Laureate at London Hospital Medical College

Mr. John Masefield, O.M., the Poet Laureate, distributed the prizes at the London Hospital Medical College on July 11th. Speaking of the indebtedness of the community to the profession of medicine, Mr. Masefield said: "We come under the care of doctors as soon as we are born. The doctor slaps us to make us breathe and give a cry, and years afterwards, when all his efforts have proved unavailing, he certifies that we have succumbed to dyspnoea. And in all those years which intervene between the two events—the first slap and the final certificate—we owe an incalculable debt to the doctor." After mentioning some of the miracles of plastic surgery which he saw during the war, Mr. Masefield went on to speak of the doctor as a literary man. Several famous poets, he said, had also been famous as physicians. Thomas Campion (d. 1619), a song-writer and exquisite poet, was an eminent physician in his day. John Keats studied medicine. Samuel Garth (1661–1719) was a physician, but gave up the profession, which was poorly paid, for literature, on which he flourished exceedingly. Mr. Masefield also mentioned his own predecessor, Robert Bridges, who was for twenty years or more a distinguished doctor. Still later he had known Ronald Ross, who wrote one of the most stirring poems of modern times describing his experiences and sufferings while pursuing his great discovery. In addition, Mr. Masefield said, many doctors had enlightened our literary studies. Recently there had appeared a profound study of Shakespeare's medicine, by a French doctor, and it was interesting to learn that Timon of Athens suffered from a form of auto-intoxication, that King Lear was a senile dement, and that poor Ophelia had hebephrenia and dementia praecox. Mr. Masefield ended by expressing some impatience with the hackneyed phrase, "A healthy mind in a healthy body." What both writers and men of science wanted was to have a delightful and delighted mind in a delighted and delightful body. He wished all those whose hands he had shaken that day the very best of good fortune in their profession. A vote of thanks to Mr. Masefield was proposed by Sir William Goschen, and seconded by Mr. Eardley Holland, and the latter spoke of poetry and great literature as affording a means of escape from the worries and anxieties of a doctor's life. Professor William Wright, in his report as dean of the college, after referring to changes in the staff and distinctions which had recently fallen to London Hospital men, said that the students' hostel, opened by the Queen in June of last year, had fulfilled admirably the purpose for which it was designed, and during term time had been so full that it was necessary to encroach upon premises originally allotted to the domestic staff. Their only anxiety with regard to it was the heavy debt of £15,000. The entry of students had been more than maintained ; the year drawing to a close had seen the largest entry since 1918–19. Professor Wright remarked that this was the twenty-fifth occasion on which he had presented an annual report as dean, and he mentioned some of the important changes which had occurred during that period. There had been added to the hospital a dental school, a clinical theatre, a cardiac institute, and the hostels, while the institute of morbid anatomy and the clinical laboratories had been extensively enlarged. Seven additional separate departments had been established and six professorial chairs created. In the all-important matter of medical research funds of upwards of £100,000 had been accumulated, and as a result of the routine work 1,800 men had obtained a first medical qualification from the college, and an additional 300 a second or higher qualification.

Central Midwives Board

At the July meeting of the Central Midwives Board for England and Wales a letter was read from Dr. W. Gilliatt, one of the Board's examiners at the London centre, tendering his resignation, owing to pressure of work. It was resolved to send to Dr. Gilliatt the best thanks of the Board for his efficient services, and to place his name on the list of medical practitioners who are willing to be called upon in special circumstances. A letter had been received from the Ministry of Health stating: (1) That the Minister was prepared to approve the new rules in Section D, such approval to operate from October 1st next, when the existing approval expires. Should the Board desire the postponement of the operation of the rules beyond October 1st the Minister would be prepared to approve the rules in accordance with the Board's wish. (2) That the Minister is prepared to approve Rule E 28 (*a*), as altered by the Board. It was agreed to reply that the Board would be glad if the new rules in Section D and Rule E 28 (*a*), as altered, could be approved so as to become operative on October 1st next. Approval as lecturer was granted to: Dr. Mabel Florence Potter (Bristol Royal Infirmary) ; Dr. Bryan Williams (Sussex Maternity Hospital) ; Dr. E. A. Gerrard, Dr. J. W. A. Hunter, and Dr. Robert Newton (St. Mary's Hospitals, Manchester).

Welfare of Disabled Ex-Service Men

The report for 1934 of the Joint Council of the Order of the Hospital of St. John of Jerusalem and the British Red Cross Society is a reminder that there are still numbers of ex-service men, disabled as a result of the war, who are in need of hospital treatment or of some

constructive help The cases assisted by the auxiliary hospital for officers department since the beginning of the war number 18,483, the majority of ex-officers now receiving help being those suffering from tuberculosis. The Officers' Hospital at Brighton continues to do good work, 108 patients having received in-patient treatment during the year under review. The committee of the Emergency Help Scheme has dealt with over 17,500 new applications during 1934, entailing an expenditure of £47,600 in varying forms of assistance to the disabled ex-service community. In response to applications from Ministry of Pensions hospitals and other institutions treating ex-service patients, the Comforts and Wards Industries Committee made 272 grants of additional comforts and articles of recreation. The report also covers the work of the Central Bureau of Hospital Information and the Home Service Ambulance Committee. There are now 342 home service ambulance stations, including affiliated cars, in the country, and the number of patients carried during 1934 was 131,208, making a total since the inception of the service of 1,437,999.

Treatment of Venereal Disease in Seamen

In February, 1934, the Minister of Health informed local authorities of the arrangements to be made by them for securing the due fulfilment by this country of the obligations attaching to the International Agreement for the Treatment of Seamen suffering from Venereal Disease. A card (Form V.44) which was issued in November, 1925, is at present in use for the purpose of providing a brief record of the diagnosis of a seaman's case and of the treatment given. This personal card has now by international agreement been revised with a view to securing that the particulars of each case, and of the various treatments given, are recorded in a more uniform manner than hitherto and on a clearly defined basis. Provision is made in this new card for the systematic noting, during each course of treatment, of the medical officer's findings on the stage of the disease, the nature and localization of the lesions, and any complications or symptoms of intolerance to treatment, etc. In this way, the work of successive medical officers dealing with a case and the choice of suitable courses of treatment should be facilitated. It is requested that the new personal card (Form V.44, revised) may be issued to all seamen patients who are not already in possession of a card, and also whenever a further card is issued to a patient in continuation of his present one.

The Hospital for Sick Children

When the annual report for 1934 went to press the appeal launched last November for funds for the rebuilding of the Hospital for Sick Children, Great Ormond Street, had brought in £81,000 towards the £400,000 required. The practice of Dick-testing all the patients in a ward when a case of scarlet fever occurs in it, and of immunizing those found to be susceptible, has been continued with very satisfactory results. Similarly, the Dick- and Schick-testing of all new nurses, followed by active immunization when indicated, has proved thoroughly effective. Various problems of blood disease in childhood have been investigated during the year, notably the behaviour of the diameter of the red blood corpuscle in acholuric familial jaundice, the relation of achlorhydria to iron-deficiency anaemia, and the study of the blood in tuberculosis and leukaemia. Special research into problems of rheumatism and endocarditis has brought to light evidence which appears to favour a virus causation of acute rheumatism. A new line of treatment of vulvo-vaginitis has proved superior to the methods previously employed. Other investigations included a study of the acid excretion in rheumatic children, the urea clearance test, and the glycogen and proteins in the blood. The urea clearance test was shown to be as valuable in children as it is in adults for detecting renal disturbances. The new pavilion at the branch hospital at Tadworth Court, Surrey, is nearing completion ; it will accommodate forty convalescent children.

Scotland

Edinburgh Royal Infirmary Superintendent

In succession to the late Colonel Thom, the managers of the Royal Infirmary, Edinburgh, have appointed Lieut.-Colonel Alexander Dron Stewart, C.I.E., to be medical superintendent of the institution. Colonel Stewart was born at Broughty Ferry, Angus, in 1883, and after taking a medical course at Edinburgh University graduated M.B., Ch.B. with first-class honours in 1906. He subsequently took the F.R.C.S.Ed. and the diplomas in public health and in tropical medicine. After joining the I.M.S. he saw active service during the war in India, Gallipoli, and Salonica. In 1919 he was medical officer of health at New Delhi, and at present he holds the post of director of the All-India Institute of Hygiene and Public Health in Calcutta. It is expected that he will take up the duties of the Edinburgh post in October.

Edinburgh Medical Graduation

At the summer medical graduation ceremony of Edinburgh University on July 17th the honorary degree of LL.D. was conferred upon Professor Alfred Newton Richards, professor of pharmacology in the University of Pennsylvania. Professor Wedderburn, who introduced the recipient, said that during the war Professor Richards spent some years in England working in the laboratories of the Medical Research Council on methods designed for the treatment of the severely wounded. In 1923 he visited Edinburgh and submitted there to the eleventh International Congress of Physiology a notable communication in which he demonstrated by micro-dissection that the fluid could be withdrawn from a single tubule of the kidney and thereafter, by microchemistry, submitted to analysis for the concentration of its various constituents. This had given direct evidence regarding the functions of the glomeruli in the kidney, and during the past decade the method had succeeded in elucidating the functions of this organ. In numerous other researches Professor Richards had advanced knowledge in various fields of pharmacology and physiology, and he was an acknowledged leader in the biological sciences of America. Professor R. W. Johnstone, of the chair of midwifery at Edinburgh, presented ten candidates for the degree of M.D., and 141 graduands for the M.B., Ch.B. In his address to the new graduates Professor Johnstone said that no profession had exerted such a profound influence on the lives of men and women as that upon which they were entering. Their real education in medicine was, however, still to come, and unless doctors continued it to the last day of their professional lives they were apt to become merely medical robots, automatic machines to whom unfortunate patients paid fees in return for soulless advice and more or less innocuous prescriptions. There was much to be said for the old system of apprenticeship in medicine, but the best apprenticeship was now to be obtained by acting as resident in a hospital, preferably a teaching hospital, where the presence of students was a constant stimulus to maintaining a high standard of work. Character and personality, Professor Johnstone continued, counted for more than intellectual ability or mere knowledge. The elixir of success in medicine was a compound of intangible things which defied complete analysis, but it must contain character in sufficient strength to enable a man to maintain his self-possession in difficulties. It must also contain a certain minimum of knowledge, which could be improved and reinforced by a tincture of humour, and which became much more potent if it were made up with a vehicle of personality that inspired confidence and cheerfulness. Finally, the vessel in which it was contained, whether it was plain or ornamental, should always be kept scrupulously clean and be provided with a closely fitting stopper for its mouth. The speaker then attempted to make an estimate of the prospects of medical graduates based on a survey of the careers of those from a previous decade who had all been at least twenty-five years in practice, and whose

success or failure might therefore be said to have been determined. His information had been derived chiefly from the *Medical Directory*, where the entries were more strictly indications of distinction than of financial success, although on the whole professional distinction and success moved on approximately parallel lines. He had chosen the ten years 1900–9, during which 1,766 men and women had graduated in medicine at Edinburgh University. Of these, fifty-three were killed in the war and 268 others had dropped out of the roll. There was left a live roll of 1,445 men and women whose names were still in the *Directory*, and he had tried to analyse the positions they had attained. He estimated that about 3 per cent. had achieved distinguished success, 31 per cent. considerable success, and 55 per cent. might be presumed to have achieved a fair degree of success. There remained 11 per cent. who could not be traced, and, while he hesitated to class them as failures, it might be assumed that the figure included the failures as well as those who, for other reasons, had left the profession. Of the 1,445, about 80 per cent. had gone into general practice; only 30 per cent. had taken the degree of M.D.; 26 per cent. had taken one or other of the higher diplomas; and 16 per cent. the Fellowship of one or other of the Royal Colleges. One man only, a professor of physiology, had obtained the Fellowship of the Royal Society. Teaching hospitals had fifty-five of these graduates on their staffs, and double that number were on the staffs of large non-teaching hospitals in Great Britain, while thirty-eight had become professors and sixty-eight lecturers in universities of the Empire or in America. With regard to the future, Professor Johnstone said that an ominous cloud on the horizon was the steadily increasing number of students entering on the study of medicine, and the proportionately greater number of graduates likely to come upon the *Medical Register* in the next six or seven years. Last year the British *Medical Register* had contained 57,496 names, which was 13,000 more than in 1920 and 17,000 more than in 1910. These numbers far more than made up the annual wastage by death and retirement. He did not consider, however, that there was occasion for alarm or pessimism, and the law of supply and demand would rectify matters in due course, although future graduates might have to face a greater degree of competition.

Facilities for the Deaf

At the annual meeting of the Scottish Association for the Deaf the Duke of Montrose, who presided, said that in his opinion deaf persons should be put in the same position as the blind were under the Blind Persons Act, 1920. The time had come, he said, when it might be possible to obtain for the deaf and dumb an Act based on similar lines to that for the blind, making provision for education in technical work at which they could earn their living. He proposed that after the next general election a Deaf Bill should be introduced into Parliament. He referred also to the international games for the deaf which were to take place at Wembley in August, to which deaf athletes were coming from fourteen different nations of Europe, and at which it was hoped there might be a representation of Scottish deaf and dumb athletes.

Reports of Societies

USE OF OXYTOCIC DRUGS POST PARTUM

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on June 21st, with the president, Mr. EARDLEY HOLLAND, in the chair, Dr. CHASSAR MOIR read a paper on "The Merits and Demerits of Oxytocic Drugs in the Post-partum Period."

Dr. Chassar Moir said that drugs which stimulated uterine contractions had three uses in the post-partum period: (1) to promote uterine involution; (2) to prevent uterine haemorrhage; and (3) to check uterine haemorrhage. During uterine involution an intense destructive activity took place in the muscle fibres, and the uterus was reduced to a twentieth or twenty-fifth of its size at full term in a few weeks. This destructive process demanded free blood supply to wash out katabolic products. Prolonged administration of spasm-producing drugs was probably a hindrance rather than a help to involution. Repeated administration of such drugs in cases of uterine sepsis was open to grave criticism. When the ergot alkaloids—ergotoxine and ergotamine (femergin, gynergen)—were given in large doses over long periods there was a possibility of peripheral gangrene developing. Many cases were recorded of gangrene developing during the puerperium, and while in many instances the gangrene was a sequel to severe generalized sepsis, there were others where a strong suspicion was attached to the use of ergotamine, which had previously been given in enormous doses.

Two types of apparatus were then demonstrated, by means of which uterine activity in the puerperium could be measured and recorded—the intrauterine bag connected to a recording manometer, and an apparatus which when placed on the abdomen recorded the changes in shape of the uterus, which could be felt through the abdominal walls.

Dr. Chassar Moir said that suckling usually produced a well-marked uterine activity. Intrauterine injection of glycerin was a very poor and unreliable means of promoting contraction. "Gravitol"—a synthetic drug claimed to have advantages over ergot—showed only slight uterine stimulating properties when given in the recommended dose. Histamine (ergamine) showed no useful uterine action unless given by injection in a dose sufficient to produce unpleasant symptoms of headache, palpitation, etc.: it was a dangerous drug to give in cases of shock, and had no use in obstetrics. Four ergot alkaloids were described: ergotoxine, ergotamine, "sensibamine," and "ergoclavine." These had identical clinical action. When given by the mouth they were unreliable, and onset of uterine action was long delayed, but by injection they produced good uterine contraction with spasm, but only after an interval of about twenty minutes. The spasm lasted one and a half hours, and the duration of the increased uterine irritability was certainly in excess of four hours—probably considerably so.

ERGOMETRINE

Quite recently Dr. H. W. Dudley of the National Institute for Medical Research at Hampstead had isolated another alkaloid, to which the name of "ergometrine" had been given.[1] Dr. Dudley's permission had been given to describe the formula as $C_{19}H_{29}O_2N_3$ (ergotoxine = $C_{35}H_{41}O_6N_5$). In several respects this new alkaloid stood in strong contrast to those already considered, and its clinical and pharmacological properties showed that it must be placed in a class by itself. Clinically it was remarkable for rapidity of action, which distinguished it from the ergotoxine-ergotamine group. By mouth an effect was usually seen in five to eight minutes, by intramuscular injection in three to four and a half minutes, and by intravenous injection in about one minute. When given by any of these routes the onset of action was abrupt, and there was well-marked uterine spasm brought about by the partial coalescence of a series of rapid contractions. This stage lasted for about one hour, after which isolated strong contractions occurred at regular intervals and continued for one and a half to three hours or more. For clinical use the dose of ergometrine was as follows: by mouth, 0.5 to 1 mg.; by intramuscular injection, 0.5 mg.; and by intravenous injection, 0.125 mg.

Unlike the ergotoxine-ergotamine groups of alkaloids, which even in ordinary dosage not infrequently produced symptoms of depression, headache, and nausea, ergometrine in clinical dose had no ill effects; indeed, the above-mentioned dosage had been increased by 50 per cent. without symptoms of intolerance appearing. Ergo-

[1] Dudley and Chassar Moir: *British Medical Journal*, March 16th, 1935, p. 520.

metrine was also free from dangerous gangrene-producing properties. There was no doubt that ergometrine was the constituent to which aqueous extracts of ergot owed their activity, and it accounted for the clinical action of the *B.P. 1914* ext. ergotae liq., about which there was at one time so much discussion. It was also certain that it was the ergometrine action of crude ergot which led to that substance being introduced into midwifery practice some three hundred years ago as a means of accelerating parturition.

CLINICAL USE OF THE ERGOT ALKALOIDS

In comparing the clinical values of the ergot alkaloids it was seen that the ergotoxine-ergotamine group was distinctly inferior to ergometrine in rapidity of action, but when the action did set in the former alkaloids, if given by injection, produced a spasm of rather longer duration than was the case with ergometrine, the difference being one of about 50 per cent. The total duration of effect was also probably longer in the case of the ergotoxine-ergotamine group. In fairness to ergometrine, however, it had to be pointed out that the precise duration of action was not a matter of first-class importance, for if in some particular case it was deemed advisable to keep up a longer effect it was a very simple matter to repeat the administration of ergometrine by giving an oral dose, either in the form of the pure alkaloid or in the form of an ergot extract of known potency. Keeping these facts in mind, it seemed fair to say that in ergometrine there existed a drug which united the useful clinical properties of the ergotoxine-ergotamine group with other valuable characteristics which these latter alkaloids lacked. Third-stage haemorrhage, if very severe and if resistant to the usual methods of treatment, might be treated with a full dose of ergometrine (for example, 0.125 mg. given intravenously). There was a theoretical risk of the resulting uterine spasm causing a retained placenta, but in practice the danger was probably remote, and the severity of the bleeding in some cases justified the risk being taken.

POSTERIOR PITUITARY EXTRACT

The action of posterior pituitary extract (pituitrin, infundin, etc.) was in some ways superior to that of all other uterine stimulants, but there were also unfavourable characteristics which had to be considered. It had a very rapid and intense action on the uterus. Two and a half minutes was the usual time for its effect to appear after the intramuscular injection of five or ten units. There was a well-marked spasm for five to ten minutes, after which the uterine contractions were much increased in force and slightly increased in frequency. Pituitary extract was erratic in its action, and in some patients it had no effect. It occasionally caused "pituitary shock." There was reason to believe that in certain circumstances it lessened the cardiac output: it was dangerous to use in patients who were already shocked. "Pitocin" was probably safer in those circumstances, because it was largely freed from the pressor principle to which the undesirable qualities were ascribed.

Pituitary extract had long been the sheet anchor in the treatment of post-partum haemorrhage, and rightly so, for its rapid and intense action was well suited to this condition. Hitherto it had been the only standardized substance available for producing a quick action in this emergency, but with the introduction of ergometrine it now had a close rival. It was true that ergometrine did not act so quickly when given by intramuscular injection—three or four minutes were required instead of two and a half minutes in the case of pituitary extract—but ergometrine was well suited for intravenous injection, and given by this route a uterine response appeared in about one minute. Ergometrine also seemed to be uniformly reliable and consistent in its action. It was too soon yet to be sure about its usefulness in cases of haemorrhage and shock, but already one such case had been successfully treated with the drug. Obstetrical shock was no contraindication to the use of ergometrine. From a consideration of these various matters it seemed justifiable to say that ergometrine was likely to prove a valuable alternative to pituitary extract in the treatment of post-partum haemorrhage, and in this and other respects to be a most useful addition to the obstetrical armamentarium.

A short cinematograph film was shown which illustrated the speed of action of ergometrine on the human uterus.

Professor J. H. BURN found himself in agreement with nearly everything that Dr. Moir had said. He wondered whether the arguments put forward did not indicate that ergot and its alkaloids had no longer any place in obstetrics, since pituitary extract could exert the same kind of effect, and as a normal constituent of the body should be less harmful.

PERSISTING EFFECTS OF WAR NEUROSES

CONFERENCE OF CONSULTANTS ON EX-SERVICE CASES

The Ex-Services Welfare Society, the organization started by Sir Frederick Milner, called its constituents together for a conference in London on July 10th, on the persisting effects of war neuroses. About forty medical men from various parts of the British Isles accepted the invitation.

Dr. EDWARD MAPOTHER (Maudsley Hospital), who presided, said that for ten years he had been working for the society as a consultant in London, and during that time he had interviewed about 2,000 patients, but he had seen little of the severer cases such as reached the mental hospital. He thought the Ministry of Pensions had steered a middle course between extravagant generosity and a too niggardly questioning of claims, and the fact that a large number of men who before the war had every prospect of full and successful lives had been left, after all possible treatment, to eke out existence on a pittance was not a criticism of the Ministry; the criticism was rather of psychiatry. He propounded the following questions for discussion:

To what extent are the chronic incapacities which seem to have arisen in the war really attributable to war experience, and to what extent to inherent neuropathic weakness?

Granted that at present there exist men suffering from these disabilities, what can be done, either to improve their present condition by treatment or to mitigate their lot by providing an environment to which they can adjust?

In what way and to what extent can the work of the Ministry be supplemented by unofficial organizations?

In the event of a future war, what more can be done in the light of experience to prevent the development of chronic sequels in the inevitable nervous casualties?

In Dr. Mapother's experience the organic conditions most often presenting themselves and raising the question of possible relation to military service were, during the earlier years, epilepsy, general paralysis, and alcoholism, somewhat later post-encephalitis, and in recent years premature senility and arteriosclerosis, not infrequently associated with Parkinsonism of the arteriosclerotic or degenerative type. With regard to epilepsy, it was inevitable that in a population of the age distribution of the Army epilepsy should have started during the war, but apart from that, his own impression was that the large majority of the alleged instances of epilepsy ascribed to the war turned out to be hysteria or some form of anxiety attack, mistaken for fits or petit mal. As for general paralysis, he believed the Ministry conceded that war stress might have operated in the case of a man developing the disease in the first few years after the war. The relation of alcoholism to mental and nervous breakdown was a very large problem in the earlier years; it had shrunk in importance lately, but it was related to a still larger and more difficult question, where the outstanding change was of a moral nature, cases in which it was difficult perhaps to give a properly detached sympathy. About ten years ago many difficult problems were raised by a considerable number of men presenting themselves with what was undoubtedly post-encephalitic Parkinsonism, and some in the earliest stages of the disease obtained pensions. The passage of time had brought it about that a number of

those who served twenty years ago were now suffering from premature senility. It was often hard to discover how far present symptoms were a relic of old neuroses or a product of new vascular disease.

FUNCTIONAL NEUROSES AND PSYCHOSES

His own impression was that in dealing with gross functional cases the Ministry had leaned to the side of generosity, and that most cases of schizophrenia and manic-depressive insanity now in Service hospitals would have been in much the same condition if the war had not occurred. That was quite consistent with the fact that a number of acute psychoses occurred in which war-time stress was the main factor, but he thought most of such cases cleared up. It was quite different with the relatively minor psychoneuroses. In many of these he felt that the whole condition was initiated by the war, and that men who, apart from that, would have passed their lives normally, were left with residues of their original neuroses or were sensitized so as to develop emotional disturbance with undue readiness under subsequent stress. It was possible, of course, to hold that the influence of the war had passed away, and that there was a constitutional weakness manifesting itself from time to time spontaneously or under stress. That might be true in a minority of cases, but it was quite illogical to take the line that neuroses must be attributable either to military service or to civil conditions, and that to qualify for pension or treatment the disability must be wholly due to military service. That was an example of the fallacy of the single cause—a fallacy rampant in psychiatry. The proof of continuity should not be too rigidly insisted on before official help was given. Many of the best type of men who had employment on discharge did not apply for pension until, after years of struggle, they were beaten by economic difficulty. It was also possible, and in keeping with the clinical picture, and even with laboratory findings, to regard the first attack of neurosis due to war stress as sensitizing a man to similar stress in the future. Even though overt manifestations had meanwhile disappeared there persisted a tendency to break down under later stress, such as bereavement or unemployment. It was very common to find the apparent cause of the fresh breakdown an event which appeared to arise wholly out of civil life ; but on a less superficial view these civil events precipitated secondary effects of the old neurosis. A neurosis, while not enough to make a man incapable of work, might be such as to rank him among those who were sacked when a season of bad trade began. It was difficult for civil regulations to take account of such remote though valid connexions.

PRESENT-DAY NEURASTHENIA

By the term "neurasthenia" Dr. Mapother said he intended an altogether more negative syndrome—in fact, an asthenic or exhaustion state the physical evidences of which were headache, insomnia, fatigability, loss of appetite, and constipation, and the mental accompaniments, lack of interest and energy, dejection, and pessimism. In earlier days anxiety neurosis was by far the most common of the war psychoneuroses, and second in frequency came hysteria. It was commonest in men of low morale, sometimes low intelligence, while the more passive or negative syndrome to which he applied the term "neurasthenia" was at first rather rare. His impression was that localized hysterical disabilities, such as paralysis of the hand or foot, were getting rare, that even the hysterical simulations or exaggerations of anxiety states, such as tremor, staggering, or stammer, were also less common. Cases of classical anxiety neurosis did still occur, but formed a much less prominent part of the total picture than formerly. In genuine mental symptoms of the anxiety type physical signs nowadays were less marked, and formed a less reliable indication of the reality and severity of the state. On the other hand, the passive or negative sort of syndrome which he had called neurasthenia was now the commonest of all, and it might be supposed that most of the cases of hysteria and anxiety neurosis had cleared up, leaving as the major part of the residue the relatively rare cases that were asthenic from the first. He did not, however, think that was the case. He believed the neurasthenia seen mostly nowadays was the type which many former cases of anxiety ultimately reached, and under civil stress many such asthenic cases would flare up again in an outburst of anxiety. If his point about change of type was true, it was important because there was a risk of injustice to the men, whose lassitude might be regarded as mere laziness, and also because this more asthenic condition now prevailing called for different conditions of treatment. As for treatment, he had never been among those who were enthusiastic for elaborate psychotherapy in war neuroses. The most positive kind of contribution that could be made in most cases was that of training out of the anergic state. The time had passed when much was to be hoped from psychological investigation into the original causal factors. For institutional treatment more than one type of provision was needed: first, for those whose disorder necessitated prolonged if not permanent care, such as the Ministry provided at Cosham and for Service patients in mental hospitals ; secondly, provision for comparatively brief treatment of cases suffering from an exacerbation of symptoms and unfitted for whatever life at home the stationary disability usually allowed ; and, finally, provision for the later stages of war neuroses, such as an industrial colony, like that run by the society at Leatherhead, where, disabilities or liabilities notwithstanding, the men attained quite a reasonable degree of efficiency, self-respect, and contentment.

STRESSES IN CIVIL LIFE

In general discussion Dr. J. LE FLEMING BURROW (Leeds) agreed with Dr. Mapother that neurasthenia was now the main problem in the case of the ex-Service man. There was a whole series of cases which could not be attributed to any cause other than some derangement of the endocrine system. These included persisting vascular troubles, like D.A.H., also many cases of thyrotoxicosis. Sir HUBERT BOND (Board of Control) said that the frequency of Graves's disease in this class of case had been noticed now for quite a number of years. Dr. F. J. NATTRASS (Newcastle) had looked through the cases he had seen on behalf of the society since 1927. He found that 13 per cent. of those that came up for examination were regarded as cases of organic disease. These were twenty-three in number, and nine of them had the Parkinson syndrome. Among his 177 cases there was only one of epilepsy. He thought that 64 per cent. were cases of war neuroses and 23 per cent. neuroses not due to the war. Post-war conditions, especially in the North of England, had a good deal to do with the persistence of war neurasthenia. Dr. C. DAVIES-JONES (Newport, I. of W.) said that the Mental Treatment Act was not the unworkable entity it was often described, and the manner of dealing with this class of case might be facilitated by the use of that Act. Dr. IVOR DAVIES (Cardiff) said that the majority of the cases he had seen at the instance of the society he had turned down, and he had had no difficulty in doing so, but there were some for which he had advised further investigation. Most cases were of simple neurasthenia, engendered by the economic situation obtaining in South Wales. In these cases the constitutional factor came in, and the war factor had entirely passed away. There were also cases of gross mental disease, probably brought on by the circumstances through which the men were passing, and not connected with war service. He had had many cases of arteriosclerosis with hypertension which were alleged to be due to war service, but were far more likely to be associated with recent economic stress. He was convinced that the principal cause of essential hypertension was mental strain. He believed it played a more important part than the intoxications. He had had cases of severe neurasthenia with continuing hysteria, and he believed that there the war did play a part.

PRESENT EXPERIENCE IN THE SERVICES

Colonel HEATLY-SPENCER (consulting physician to the British Army) said that in the Army it was quite a common thing for officers and men to say that they were suffering from malaria contracted ten or fifteen years ago. It was noteworthy that the man who had had malaria referred to his old complaint whenever he had a feverish cold, no doubt because it was more satisfactory to trace back to a disability received while serving the country than to confess merely to catching a cold or influenza. Nevertheless, even such cases were important because the men might suffer from a genuine sense of grievance. He believed that there was no such thing as chronic relapsing malaria lasting for many years after the person had left the Tropics. With regard to epilepsy, in the Army during the last five years, owing to the researches of Colonel W. P. MacArthur, about a hundred cases of epilepsy due to cysticercosis had been discovered, and possibly some of such cases were to be found among ex-Service men. Surgeon Captain S. F. DUDLEY, representing the medical department of the Royal Navy, testified to similar experiences.

Dr. ALDREN TURNER (neurologist, War Office Medical Board) remarked that there did not seem to be such a thing at the present time as an uncomplicated case of war neurosis. So many years had passed and so many circumstances had intervened that such uncomplicated cases were unlikely to be found. The cases in which claims were submitted to the Ministry of Pensions might be divided into two groups: those in which the symptoms of neurosis in the same or a different form recurred after prolonged remission, and those in which the symptoms became aggravated after remaining stationary for many years. It could not be denied that some unfavourable influence had interfered with the natural tendency towards recovery. There was undoubtedly a type of case at present claiming compensation in which the disability was not due to war service, but possibly to financial loss, unemployment, business cares, or marital or domestic troubles. Sometimes misguided advice, even medical advice, played a part in relapses. Each case must be judged on its evidence, but properly to balance the effects of war service and those of post-war conditions was no easy matter.

Wing-Commander H. L. BURTON (Central Medical Establishment of the Royal Air Force) said that he had been struck by the marked effect of fatigue and prolonged strain in promoting the conditions under discussion. In selecting air personnel an endeavour was made to exclude any who showed signs of nervous instability. This was done in the first place by taking the past history and inquiring into the domestic life and social interests of the candidate; with a little experience one could soon assign him to a certain psychological type. Then a careful physical examination was made to exclude not only organic disease but any defect of the special senses, also to test as far as possible the cardio-respiratory efficiency and, to a certain extent, neuro-muscular co-ordination and control. By such means it was hoped to exclude people who were likely to break down during the first few weeks of the next war, if and when it came. He had had the opportunity of examining one of the survivors of the Quetta earthquake who had been buried for seven and a half hours and had come out perfectly happily, without the slightest trace of what might have been expected at the end of the war. It was the length of the strain that caused breakage, and not necessarily its severity. He thought that many cases of flying stress in the war were cases of exhaustion of some endocrine gland, possibly the adrenal. The few recruits whom he had seen break down early in service appeared to belong to a type which might be described as psychologically inferior.

MINISTRY OF PENSIONS EXPERIENCE

Dr. J. F. E. PRIDEAUX (Ministry of Pensions) said that the whole problem of war neuroses was now being investigated by the Ministry. He did not know whether it would be possible to deal with 10 per cent. of the 60,000 cases on record, but an intensive study was being made. The cases which had seen only home service were being compared with those of long oversea service, and special attention was paid to the men who had been invalided home and then returned to the front line. He thought the question of cysticercosis in epilepsy more important than had hitherto been recognized. In all cases of men who had served in India and had epilepsy a thorough *x*-ray examination had been recommended, and cases were being found in which it was evident that all along the epilepsy had been due to the cysticercosis. A large number of cases of Huntington's chorea had had to be dealt with, generally without any family history; some might be choreiform sequels of encephalitis.

Dr. DAVID HUNTER (Nottingham) said that he had had to deal with upwards of fifty ex-Service cases, but he thought the bulk of them would have developed the malady if there had been no war at all. Dr. W. R. D. FAIRBAIRN (Edinburgh) agreed with Dr. Mapother as to neurasthenia being the dominant condition at the present stage. His own bias was for psychotherapy, but he did not think any useful purpose was served by any elaborate form of this treatment in these cases. A point to remember was that the born neurasthenic had, so to speak, invested his capital in his psychoneurotic condition, not necessarily consciously, and, his capital having depreciated, he refused to cut his loss. Occupation therapy was a good thing in many of these cases. Dr. H. R. C. RUTHERFORD (Dublin) said that the ex-Service man in Ireland was perhaps worse off than in England, on account of extreme poverty. Dr. J. H. MACDONALD (Glasgow) was convinced that a number of cases of post-encephalitic trouble were to be traced to an illness two or three years previously which had been labelled influenza. Careful inquiry would show that there had been a febrile attack so labelled, and to that could be traced the origin of the disorder. Quite a number of cases of neurasthenia were of post-war origin, yet a certain predisposition dated from war service. It was not so much psycho-analytical treatment that was called for as a capacity for understanding and an adaptability in treatment which came by experience.

Dr. MAPOTHER, in closing the discussion, said that he had been struck by the moderation of the views expressed and the large measure of agreement. There were really no acute differences either as to causation or as to the measures to be adopted for the present victims and for possible future ones.

At the conclusion of the conference a luncheon took place, presided over by Admiral Sir REGINALD TYRWHITT, president of the Ex-Services Welfare Society, at which Miss Irene Ward, M.P., gave an address, and Dr. Mapother related the conclusions of the conference. In the afternoon the visitors inspected the society's industrial home for disabled ex-Service men at Leatherhead.

BRITISH ASSOCIATION OF RADIOLOGISTS

The first Annual General Meeting and Congress of the British Association of Radiologists was held on Friday and Saturday, July 12th and 13th, at Birmingham. It was attended by a large and representative gathering of radiologists. By the courtesy of the University of Birmingham the meetings were held in the University Buildings, and at Bournbrook and Edmund Street.

PRESIDENTIAL ADDRESS AND ANNUAL DINNER

On the Friday morning, after the business meeting, the president, Dr. JAMES F. BRAILSFORD of Birmingham, delivered his presidential address. In this he first traced the progress of radiology through its pre-war, war, and post-war phases, and paid tribute to the early workers in radiology, many of whom sacrificed their lives to its development. He then outlined the objects of the association, and pointed out that in addition to the annual congress, at which radiologists from all over the country might interchange views, the association provided a medium of co-operation by which the advancement of

radiology might be promoted in its ethical, educational, and economic aspects. Dr. Brailsford announced that a Fellowship of the association had been founded, and that fourteen Founder Fellows had been elected, all of whom had already been honoured with high radiological office by their colleagues. He then outlined the rules governing admission to the Fellowship. After the presidential address a visit was paid to the new Hospital Buildings at the Birmingham Hospital Centre now in process of erection at Bournbrook, where the plans of the new *x*-ray department were inspected. Following this, members of the association were entertained to lunch by the University. In the afternoon a visit was paid to the University Buildings in Edmund Street, where an exhibition of radiographs of bone and joint conditions had been assembled by the president. The exhibition included a large number of cases of special interest from Dr. Brailsford's own collection, and contributions from the majority of members, so that a very representative collection of bone and joint conditions was on view.

On Friday evening the annual dinner of the association was held at the Queen's Hotel, Birmingham, with the president in the chair. Amongst the official guests were the Lord Mayor of Birmingham, the Pro-Chancellor of the University, Dr. Bruce Lockhart, and the Town Clerk of Birmingham. The toast of "The City of Birmingham" was proposed by Dr. H. K. Graham Hodgson and replied to by the Lord Mayor, who welcomed the association to the city. The toast of "The Association" was proposed by Dr. C. Thurstan Holland, the first honorary member of the association. Dr. Thurstan Holland then presented Dr. Brailsford with the Presidential Badge, a gift from himself to the association. In his reply the president expressed his own gratification at the success of the association's first meeting. The toast of "The Guests" was proposed by Dr. R. S. Paterson of Manchester, the president-elect, and replied to by Mr. Walter Barrow, the Pro-Chancellor of the University.

SCIENTIFIC PAPERS

Saturday morning was devoted to clinical papers.

Dr. R. E. ROBERTS of Liverpool opened a discussion on ante-natal radiology, and described his method of cephalometry as a means of estimating the maturity of the foetus. Dr. L. A. ROWDEN of Leeds gave an account of his method of pelvimetry. Drs. J. DUNCAN WHITE, C. L. MCDONOGH, and G. VILVANDRE took part in the discussion which followed. Dr. J. H. DOUGLAS WEBSTER introduced a discussion on methods and results with pre- and post-operative radiation in breast cancer. He briefly outlined the development of the methods which had been used in a number of centres, and quoted statistics of his own and of others from which it appeared that the percentage of five-year "cures" might be doubled after a suitable combined course of radiation and operation, as compared with operation results in similar groups of cases. Several recently employed methods had given better results than the more primitive technique. Drs. HARRISON ORTON, F. HERNAMAN-JOHNSON, G. VILVANDRE, J. E. A. LYNHAM, RALSTON PATERSON, W. BARRINGTON PROWSE, and W. GRIFFITHS contributed to the discussion which followed. Dr. S. GILBERT SCOTT read a paper on spondylitis adolescens, describing its clinical and radiological features and the results of *x*-ray treatment, after which the meeting adjourned.

TYPHUS FEVERS IN THE TROPICS

An ordinary meeting of the Royal Society of Tropical Medicine and Hygiene was held at Manson House on June 20th, with the president, Sir ARTHUR BAGSHAWE, in the chair.

In his opening remarks on the typhus fevers, Major-General Sir JOHN MEGAW pointed out that much of the confusion on the typhus fevers was due to the names which had been applied, or misapplied, to them. About 100 years ago typhus fever was found to be a separate entity, as was also relapsing fever, and subsequently the name "typhus" came to be applied to severe acute cases of contagious fever of from ten to twenty days' duration, accompanied by a peculiar skin rash. Twenty-five years ago two great discoveries were made almost simultaneously: (1) that typhus fever was transmitted by lice; and (2) that peculiar bodies, later known as rickettsiae, were present in the vector insects and in the tissues of people suffering from the disease. The word "typhus" thus came to be applied to a definite disease entity, and everything appeared simple, except for the fact that other diseases of a similar type were known, including the spotted fever of the Rocky Mountains, Japanese river fever, and Brill's disease, which was recognized as a mild type of typhus. Later it was found that there was cross immunity between Brill's disease and typhus and that they gave the same serological reactions. A few years ago Brill's disease began to be regarded as a disease of rats, conveyed to man by fleas. Zinsser had pointed out that about 97 per cent. of the recent cases of this disease in New York appeared in immigrants from countries where typhus fevers occurred, and in his opinion Brill's disease simply represents a flare-up of a latent typhus infection. Sir John Megaw said he had been personally interested in this question since 1916, when he got an attack of fever resembling typhus and almost certainly conveyed by a jungle tick in the Himalayan forests. Later he made a provisional classification of the fevers of the typhus group under (1) louse typhus, (2) tick typhus, (3) mite typhus; in recent years he had added (4) flea typhus, and (5) typhus due to unknown vectors. Dr. William Fletcher's work in 1916 threw a flood of light on the subject, for he had shown the existence in Malaya of one type of tropical typhus having a mite vector and of another probably having a flea vector, and also that the two types differed serologically. Just as there was much confusion over the names of the fevers, so were there differences of opinion with regard to the names of the associated Rickettsia bodies. General Harvey had suggested *Rickettsia orientalis* for mite typhus, *Rickettsia rickettsi* for the tick typhus, and *Rickettsia prowazeki* for the virus of louse and flea typhus. The speaker considered that the virus of flea typhus was deserving of a separate name, and suggested *Rickettsia murina* or *R. fletcheri* as suitable.

Dr. WILLIAM FLETCHER said that Sir John Megaw's paper was of especial interest because he had been the first to draw attention to non-louse-borne typhus and to realize that typhus exanthematicus was not a disease which stood alone, but was one of a large group of related fevers. The non-louse-borne diseases of the typhus group had come into greater prominence during the last few years, because they had spread in places where they were formerly unknown, and as they spread so they had sometimes become more deadly. In the Malay States tropical typhus was first recognized in 1924, and having had an intimate knowledge of that country since 1903, Dr. Fletcher could vouch that it was a new disease. Up to 1927 it was not dangerous to life, but by 1931 the mortality had increased to 12 per cent. One of the most important recent developments in the study of typhus was the discovery of the virus in the brains of rats in practically every country where a careful search had been made. Rodents had been known as carriers of Japanese river fever, and in 1931 the virus of Mexican typhus was found in the brains of wild rats. Rickettsia viruses of the typhus group were carried from rodents to man by larval mites, ticks, and fleas, and in ticks the virus could pass from generation to generation and from tick to tick without the intervention of a vertebrate host. In mites the larva alone was a blood-sucker, and, as it fed only once, the virus must be passed on through the nymph, the adult, and the egg to the next generation before it could be transmitted to another host. The wide diffusion of the typhus virus in rats all over the world raise the important question of whether the murine virus could give rise to epidemics of classical typhus. Virus-vaccines prepared from the rickettsiae of infected arthropods had been in use for some years, and a potent protective vaccine for Rocky Mountain fever (*Rickettsia rickettsi*) and another for typhus exanthematicus

(*Rickettsia prowazeki*) were in use. It was interesting to note that in Mexico a vaccine prepared from mammalian rickettsiae produced a positive Weil-Felix reaction after inoculation, but the mystery of the connexion of *B. proteus* X strains with the rickettsial viruses of the typhus group remained unsolved.

Dr. FELIX said that in the serology of the typhus group of diseases a turning-point was marked by Fletcher and Lesslar's work on tropical typhus in the Federated Malay States, for this work first established two distinct types of typhus fever. He showed three tables: (1) illustrating cross-immunity tests and agglutination reactions with *B. proteus* X; (2) the main and group agglutination in different varieties of typhus; and (3) the serological classification of the typhus groups of fevers. Table 1 revealed that cross protection had been obtained only with those viruses which possessed the O antigen of type X19. These included classical typhus, Brill's disease, and "fièvre nautique," while the viruses of Rocky Mountain spotted fever and "fièvre boutonneuse" yielded a negative cross-immunity test and did not possess this main antigen. Table 1 also demonstrated that results of the cross-immunity tests between the different viruses of the typhus group could be predicted by the agglutination reactions obtained by the various types of *B. proteus* X. The combination of cross-immunity experiments in the guinea-pig with tests for agglutination production in the rabbit was recommended for the analysis of the antigenic structure of different typhus viruses. Table 2 recorded the agglutination reactions for three types of *B. proteus* X—namely, X19, XK, and X2. The latter was of especial importance in the tick-borne varieties of typhus, though the question whether it was a major or minor antigenic factor was still under investigation. In Table 3 the classification was based on antigenic types of virus, on which immunity and immunity reactions depended. There were three subgroups: the first included those reacting strongly with X19, mildly with X2, and not at all with XK. These embraced classical epidemic typhus, tabardillo, endemic typhus of different countries—U.S.A. (Brill's), Malaya (shop typhus), and Toulon (fièvre nautique), etc. The second subgroup reacted strongly to XK and negatively to X2 and X19. It included Japanese river fever, Malayan scrub typhus, and scrub typhus of the East Indies. In all cases mites were the vector. The third group comprised an as yet undetermined type and reacted in group fashion weakly with all three strains, X19, X2, and XK; it included spotted fever of the Rocky Mountains, fièvre boutonneuse, and the tick-bite fevers of South Africa and India, etc.

Major-General HARVEY said that Zinsser and his colleagues had recently shown that the virus isolated from cases of Brill's disease in New York was the human or classical Old World virus, whereas the virus of endemic typhus in America and elsewhere was the murine or rat virus. According to Zinsser, Brill's disease was not transmitted by lice, fleas, or ticks, but was merely the recrudescence of an infection originally contracted—perhaps many years ago—in European countries like Poland and Russia, where typhus is or used to be endemic. The disease did not spread by contacts in America. Regarding typhus in South Africa, there apparently the viruses of louse-borne, tick-borne, and flea-borne typhus had their own peculiarities, for there was not complete cross-immunity between the epidemic and endemic viruses, whereas in other countries a definite cross immunity had been proved; also, there were serological differences.

The annual general meeting of the Medical Society of Individual Psychology was held on July 11th, when Sir Walter Langdon-Brown presided in the absence abroad of Dr. J. C. Young. The honorary secretary's statement showed a small increase in membership and that the high level of papers read and of the discussions had been maintained. An interesting programme has been arranged for next session. The honorary treasurer reported that the financial position continues to be very satisfactory. Dr. M. Bevan-Brown was elected chairman, and Dr. Alexander Baldie secretary.

CORRESPONDENCE

Temperament and Digestive Disorders

SIR,—The question raised by Dr. Millais Culpin in your issue of July 20th has been the centre of much work in gastro-enterology since Barras introduced the conception of psychogenic dyspepsia more than a century ago. Our mode of approach, however, differs from that of Dr. Millais Culpin.

No one denies that emotional stress is one of the elements—varying in importance according to individuals—of the genesis of digestive disorders. But the question is much more complicated. In the first place, the mental disturbance is studied by gastro-enterologists not only from the subjective psychological point of view but also from that of conditioned reflexes—a standpoint which might well be adopted by psychologists as giving far greater precision. Further, between mental-cortical disturbances and digestive disorders intervenes the nervous vegetative-endocrine system, and in the last resort it is disturbances of this system—ultimately chemical, as Sir Thomas Lewis and Sir Henry Dale have shown—which react on digestive organs. In the last resort, abnormal products of metabolism due to disturbances of the regulators of intermediary metabolism are at the basis of digestive disorders.

Theoretically, treatment could be effective through action on the cerebral cortex by mental as well as by physical methods, because the cerebral cortex, the summit of integration, is the keystone of all these disturbances. However, definite action on the cerebral cortex will be possible only when the mechanism of its functioning, studied on the lines of the work of Pavlov, gives more accurate objective methods of diagnosis and treatment. At present in gastro-enterological treatment we have to act on the nervous vegetative-endocrine metabolic level and on the organic level. Dr. Millais Culpin believes that we limit ourselves to the organic level, but this has not been the case for many years. The metabolic disturbances which underlie digestive disorders are the object of our action, and we endeavour to cure them by various procedures, of which the more modern are dietotherapy and physical treatment, endocrinotherapy, and chemical desensitization. It is the individual constitutional point of view which dominates modern gastro-enterological practice.—I am, etc.,

London, W.1, July 20th. A. P. CAWADIAS.

Diagnosis of Intussusception

SIR,—Dr. A. Greenwood, in the *British Medical Journal* of July 20th, reminds us of certain features distinctive of intussusception in older children. He is not by any means alone in having the feeling he describes, that if the child had been younger he would have diagnosed intussusception. During the routine of country practice this condition is certainly not so constantly in mind as while practising in a hospital for children.

Three years ago I was called upon by my assistant to deal with an appendix abscess in a boy of 7. I saw him at the Butterfield Cottage Hospital, Bourne. There was a firm mass in the right iliac fossa, the temperature was 99.2° and the pulse rate 112. I decided that laparotomy was necessary, and discovered an ileo-caecal intussusception reducible without much difficulty, an engorged appendix which I removed, and an abnormally mobile caecum and ascending colon. The child has been perfectly well since operation. I cannot honestly say that intussusception was in this instance definitely diagnosed

before the condition was discovered. However, I am confident that if the parents had been seen in advance and the suddenness of origin verified there would have been no room for doubt.

Further, from my experience of intussusception in older children, I would like to emphasize that if time is spent in palpating the tumour it can be felt to relax and become harder, and as it contracts complaint is made of pain. At the same time the pulse also becomes more rapid. There may or may not be vomiting, and the passage of blood is rare. Since having had to operate on a child for a second attack of intussusception and found an appendix, which I removed then, I have made it an invariable rule to remove that organ, and have never found recurrence where this has been done. I myself am a firm believer in the teaching of Mr. George Waugh, that the usual ileo-caecal intussusception does not occur without abnormal mobility of the caecum and ascending colon. At the same time, it has been my experience that recurrence does not happen after appendicectomy done as a routine at the time of reduction. It would be interesting to know the experience of others on this point ; and, more particularly, whether anyone has had to operate on a recurrent intussusception in a child whose appendix had been previously removed.—I am, etc.,

Bourne, July 20th. W. B. R. MONTEITH.

Albee's Operation Under Spinal Anaesthesia

SIR,—I have been spurred by the interesting letter of Dr. Howard Jones (*Journal*, July 13th, p. 85) to commend spinal anaesthesia for Albee spine-grafting operations. I first used it in January, 1933, and have employed it on seven other occasions. The ages of the patients range from 14 to 46, and the level of the Pott's disease from the ninth dorsal to the fifth lumbar vertebra. I have not used it for lesions as high as D 2 and 3.

I profess no technical knowledge of the mechanics of different solutions, but I have used what is said to be a "lighter than C.S.F." solution—spinocain. After a suitable preliminary injection of omnopon and scopolamine, the patient comes to the theatre in the anterior plaster turning case and remains in this until the end of the operation, when he is turned back on to the frame. I always inject the drug myself, preferring to be alone responsible for the asepsis, or otherwise, of the operation field. I inject it between L 2 and 3, except when the level of the lesion is above this, in which case I go in two spaces above the lesion. The table is tilted head down, about 10 degrees, and this, combined with the natural high level of the dorsal spinal canal, prevents the upward diffusion of the light solution, and also ensures a satisfactory cerebral blood supply. After the injection has been made anaesthesia is complete by the time the towels are in position. Reflex movements during inhalation anaesthesia and post-anaesthetic vomiting in a patient on a frame are undesirable, and are eliminated with spinal anaesthesia.—I am, etc.,

Manchester, July 18th. S. M. MILNER, F.R.C.S.

Anaesthesia for Tonsillectomy

SIR,—In discussing "Anaesthesia for Tonsillectomy" in your last issue Dr. Gorham states that he has found the oral administration of nembutal unsatisfactory for general use. I do not know whether he has tried the method of divided doses. He may obtain better results if the estimated dose is given an hour before the time of operation, to be followed half an hour later, if the child is not drowsy, by a second dose of 1 grain or 1/2 grain. Capsules containing these doses can be obtained. I have found this method of giving nembutal quite satisfactory, and preferable in some children to a rectal injection.

Dr. Gorham repeats the statement which is constantly cropping up about the time taken in the preparation of avertin. It has always astonished me, because if in hospital practice a flask of *warmed* distilled water is kept ready the preparation of the solution does not take more than two to three minutes. The measured quantities of avertin and distilled water are shaken together *vigorously* and one to two drops of Congo-red then added.—I am, etc.,

London, N.W., July 22nd. FRANCIS E. SHIPWAY.

SIR,—Dr. Gorham's article on this subject in the *Journal* of July 20th is definitely at variance with my own not inconsiderable experience in certain respects. His choice of paraldehyde per rectum is open to objection. It does not meet desideratum (*c*) of his article—namely, ease of administration. It is true that the child comes to the table drowsy, requires little anaesthetic, and is quickly suitable for the surgeon's attention. The child has had, however, a most uncomfortable and frightening experience, and received a psychological injury more serious than that caused by an unpremedicated operation. Let me suggest a personal supervision of the paraldehyde method throughout, when its disadvantages will be obvious.

Simpler and better is to give by mouth a combination of, say, 5 grains of pot. brom. with a grain of phenobarbitone on the previous evening, repeated a couple of hours before operation. It allows of reasonable amnesia, easy induction, and steady maintenance satisfactory to the surgeon. Personally I use the elixir phenobarbital co. (D. F. and Co.) ʒ j diluted to ʒ ss, which is an elegant combination of the above drugs, but there are other equally suitable preparations of the same type. This is the dosage for the child aged 3 to 7. Even when continuing, as one usually does nowadays, with a gas-oxygen-ether sequence for the dissection operation, I like to start the anaesthesia with a few drops of chloroform on an open mask. It shortens induction and minimizes any tendency to gagging. For most adults nembutal meets the indications.

I am in complete agreement with Dr. Gorham in regard to avertin and the opiate group.—I am, etc.,

Cosham, July 20th. D. M. C. CHURCH.

Return of Sight in an Amblyopic Eye

SIR,—It was interesting to read of the case of complete return of sight in an amblyopic eye, which Dr. A. Wynn Green reported in the *Journal* of July 20th (p. 113). For the sake of those who accept all written statements at their face value, it should be pointed out that Dr. Green obviously cannot intend it to be taken literally when he makes the statement that "this case affords an interesting illustration of the importance of persisting, even over long periods, in the occlusion of amblyopic eyes." It must have been Dr. Green's intention to emphasize the benefit of persistent occlusion, not of the amblyopic eye, but of its non-squinting fellow.

This case comes as a timely example to many. Occlusion, to be of any real value, must be complete, constant, and persistent. The clever child is all too often allowed to arrange matters so that occlusion is only complete in the vicinity of the ophthalmic surgeon. Constancy is never more to be admired than in the treatment of amblyopia ; too many children are still being asked to cover their good eye for half to one hour thrice daily. Little or no good can ensue from such short and inter-

mittent occlusion. Little better results are obtained by increasing the number or extent of the periods of occlusion. It is only when the good eye is put out of action altogether that the amblyopia begins to resolve reasonably quickly. If there be any degree of amblyopia the good eye should be closed, and kept closed by means of sticking-plaster, for a month. There can be no harm in such treatment, providing the case be kept under observation so as to prevent production of an undesirable degree of squint or amblyopia in the occluded eye. Persistence in such efforts will bring reward in recovery of sight, an important step in the treatment of non-paralytic squint.—I am, etc.,

London, W.1, July 22nd. VICTOR PURVIS.

Tracheitis

SIR,—I am glad to see that at last someone has brought forward a suggestion, with scientific proof, that there is a definite disease, tracheitis, apart from influenza, and just as much specific as measles, mumps, and much else. Drs. David and Robert Thomson have described it most admirably in their paper, "Some Features of the Influenzal Epidemic in the Spring of 1935" (*Journal*, July 13th). I have for many years contended that this is the case, yet tracheitis is not mentioned in my *Index of Treatment*. I do not sign it on my insurance certificates, only using the term influenza, because one never knows when an approved society is going to make a fuss about a name they have never heard of.—I am, etc.,

London, W.10, July 16th. NORMAN H. JOY.

Apparatus for Nasal Ionization

SIR,—I was interested in Mr. Arthur Miller's apparatus for nasal ionization (*Journal*, July 13th, p. 68). After having used many methods, I now employ the following simple apparatus, and find that it satisfies all requirements.

All that is needed are two six-inch lengths of fine, rubber-covered flex. The rubber cover is removed and the fine strands of copper wire bared for two inches. These are embedded in cotton-wool of suitable size and shape, which has been previously soaked in zinc solution. This cotton-wool plug is carefully packed into the nose through a speculum with the aid of reflected light. The proximal ends of the two pieces of flex are bared for a distance of one inch. These ends are spliced together and joined to the positive cable of the electrical apparatus, either by splicing or by a small barrel connector. The actual ionization is done in the recumbent position. These pieces of flex are very light and are perfectly comfortable in use. They cost about a penny, and fulfil all the requirements of nasal ionization.

—I am, etc.,

T. B. JOBSON, M.D., B.CH.,
Surgeon, Ear, Nose, and Throat Department, Royal Surrey County Hospital.

Guildford, July 17th.

Cancer of the Skin

SIR,—I should like to correct Dr. Arbour Stephens's statement in the *Journal* of July 13th (p. 87) that there is an excess of carbon monoxide gas in the mule-spinning room of a cotton mill, caused by "gassing" the yarn by its passage through a Bunsen burner. The process of gassing is employed to burn off the untidy, useless ends of cotton fibres which project from the yarn, and never takes place in that part of a mill in which cotton is being spun. In the majority of instances it is done in another mill altogether, in which cancer of the skin rarely occurs.—I am, etc.,

Manchester, July 22nd. E. M. BROCKBANK.

Serum Treatment in Puerperal Septicaemia

SIR,—The practice of medicine would lose half its fascination were it not for the uncertainty which so frequently exists between *post hoc* and *propter hoc*, and Dr. Leonard Colebrook's reply to my letter of July 7th affords an excellent illustration of this point.

He considers that the "early and generous administration of serum," which Dr. Selwood Lindsay advocates, played no part in the recovery of the case which I quoted, and is impressed by the fact that organisms were present in abundance in the blood stream eleven days after the serum was given. I cannot say that I feel very much impressed by that point. The ways of an antitoxic serum in the blood are so many and various that they might well have been added to Solomon's list of "things too wonderful to know" if only he had been conversant with serology. What does impress me is not the fact that organisms were still found eleven days after the initial (and sole) doses of serum, but that they were totally absent within three weeks; that the Queen Charlotte's authorities informed us that they had never known a case with so heavy a blood infection make so rapid a recovery; that the same patient had made a similarly spectacular recovery from a haemolytic streptococcal septicaemia a year previously, following (I dare not say "as a result of") the use of serum; and that Dr. Lindsay has seen a large number of similarly encouraging results after the early use of serum at Belfast.

Are these all coincidences? Perhaps they are. But if so, one would much like to know how many coincidences it takes to establish a cause. Anyhow, I may perhaps be excused for giving my vote in favour of *propter hoc* in this instance, even if I cannot get my friend Dr. Colebrook to agree with me. There is one point in his letter, however, which I most gratefully acknowledge: he has spared us on this occasion that time-honoured argument of the puzzled pathologist—protein shock.—I am, etc.,

Lingfield, July 21st. HAROLD BALME.

Puerperal Streptococcal Septicaemia

SIR,—Dr. Lindsay, in his article in your issue of July 6th, has laid great emphasis on the prophylaxis of this disease, particularly on the function of ante-natal clinics, where septic foci, etc., would be detected and advice imparted with a view to raising general resistance to infection. In extension of the latter, may I suggest that search should be made for the type of individual whose diet is deficient habitually, either through choice or poverty, in such articles of food as green vegetables or fat. The individual who habitually refuses to eat green vegetables or fat is, in my experience, more likely to develop tuberculosis and also catarrhal conditions of the respiratory tract; this type of individual may also be more likely to develop puerperal septicaemia. By persuasion and instruction he may be induced to accept these articles of diet.—I am, etc.,

Tuberculosis Dispensary, Plaistow, E.13, July 13th. P. A. GALPIN.

Shifting Sands of the Architecture of Medicine

SIR,—Having regard to the title of Sir Humphry Rolleston's Purvis Oration, and considering his own definition of that title, it is hard to understand why he should have seen fit to introduce the subject of homoeopathy. The principles of Hahnemann have never dominated medical practice. They never "had their day of exclusive popularity," nor have they either

entirely or partially "ceased to be." On the contrary, homoeopathy from its inception has been, and still is being, practised by that growing minority of the profession which has had sufficient curiosity to put it to the clinical test.

Some of the views expressed by Sir Humphry in this connexion call for strong comment. He appears to regard the doctrine of signatures and the law of similars as being synonymous. This is certainly a novel and, I think, a quite original conception. The two things have nothing in common whatsoever.

More amazing still, however, is the remark: ". . . the professed principles and practice of homoeopathy do not appeal in the light of medical science." In point of fact they *do* appeal to hundreds of doctors who have received a sound training in medical science, and some of whom are generally recognized for their scientific genius. I might mention, for example, Professor Bier of Berlin University, and the late Mr. Maddox, both of whose names are of world-wide repute on account of their scientific work. On such evidence alone I would assert that Sir Humphry's remark is a gross misstatement of fact. But in addition homoeopathy receives support from the progress of medical science itself. Many of the scientific discoveries of the past hundred years have confirmed the truth of Hahnemann's principles, while not one has even tended to destroy them. That assertion is supported by fact. Can Sir Humphry say the same of his statement? Can he mention any scientific truth which disproves one homoeopathic principle?

The present-day practice of homoeopathy is governed by the unchanged fundamental principles which were enunciated by Hahnemann over a century ago. These principles owe their immutability, in my opinion, to their having been founded on the rock of scientific experiment and observation, and not on the shifting sands of conjecture and hypothesis.—I am, etc.,

St. Annes-on-Sea, July 23rd. G. RUTHVEN MITCHELL.

Recovery after Cardiac Arrest

SIR,—I am indebted to Dr. C. Langton Hewer for his letter in the *Journal* of July 20th (p. 135), in which he points out that auricular puncture is more likely to succeed than ventricular puncture in a case of cardiac collapse. I notice also that he has special curved needles five inches long, and I should be pleased if he could inform me who manufactures these needles for him. In concluding, I should like to correct an error in the dosage of adrenaline, which I overlooked in correcting the proof of my original memorandum (*Journal*, July 13th, p. 64). The dose of adrenaline given was, of course, not 5 c.cm., but 5 minims of the 1 in 1,000 solution, and was repeated after three minutes: the total dose was 10 minims and not 10 c.cm.—I am, etc.,

Birkenhead, July 20th. R. A. GRANT.

Tuberculosis Rates

SIR,—As reported in the issue of the *Journal* of July 20th, the Minister of Health has supplied us with the tuberculosis death rate for thirteen years. To judge the present position of the disease we should have the number of pulmonary cases alive on December 31st in each year. This would give us the true state of affairs. The life of a case of tuberculosis of the lungs is more prolonged than it was a few years ago. The Minister has the return of existing cases from the county council medical officers at the end of each year, and unless we have those figures I think the death rate figures are of modified value in indicating the present position.

Until strict segregation of all positive lung cases is carried out the disease will not die out or be exterminated. We are likely, with the present rate of notifications, to have more than a million people notified in the next twenty years; more than a million people infected, all from pre-existing cases in humans, animals, or birds—for the sole reason that prevention is in its infancy as now practised in this country.

People are now alive to the infectiousness of the disease, and strong measures would probably meet with less opposition than was displayed when the notification of the disease was initiated.—I am, etc.,

PRIDEAUX SELBY, M.R.C.S., L.R.C.P.

Lynsted, July 20th.

Blistering for Arthritis

SIR,—The value of blistering in the treatment of rheumatoid and osteo-arthritis has perhaps not been fully appreciated. A patient of mine, a man aged forty-eight years, had suffered from osteo-arthritis in the left ankle-joint for some two years. His treatment had included massage, ionization, radiant heat, and *x*-ray therapy. There had been no improvement. Last summer, contrary to my advice, he went swimming; on the occasion of his first aquatic adventure he was badly sunburnt. The skin over his ankle-joint blistered severely. The surprising sequel was that in about three weeks' time his trouble had completely disappeared. Whereas previously he had suffered excruciating pain when walking, locomotion was now normal. Since then, with encouraging results, I have treated three cases of osteo-arthritis by blistering the affected joints with emplastrum cantharidis. In all three some improvement has been observable.—I am, etc.,

Auckland, New Zealand, May 25th. JOHN P. HASTINGS.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on July 20th the following medical degrees were conferred:

D.M.—J. F. Brock, J. H. Hunt, C. W. Flemming, C. R. Lane.

B.M.—M. C. Chapman, J. C. Penton, D. F. G. Moir, K. B. Dawson, J. R. Hollick, C. Hollins, N. Leitch, A. P. Meiklejohn, W. E. Henley, D. H. Hertz, W. R. Trotter, J. W. A. Turner, R. Bevan, E. M. Buzzard, C. F. Hamilton-Turner, P. C. Alexander, P. G. Burgess, H. Burton, W. J. C. Anstie.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examinations indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* D. P. Bali, A. Pollitt, I. G. Williams. *Part II:* D. P. Bali, J. L. Dobbie, T. P. Eustace, L. Freeman, A. H. Gibson, D. Glass, P. R. Goodfellow, T. A. Green, B. T. Hooper, W. G. S. Hopkirk, A. S. Johnstone, Z. J. Joseph, A. H. Jowell, D. R. McPherson, S. Mukerjee, H. S. Rassim, Beatrice M. Willmott.

UNIVERSITY OF LONDON

At a meeting of the Senate on July 17th James Whillis, M.D., M.S., F.R.C.S., was appointed to the readership in anatomy (Guy's Hospital Medical School) from October 1st, and on July 19th E. P. Stibbe, F.R.C.S., was appointed to the readership in anatomy (King's College) from October 1st.

LONDON HOSPITAL MEDICAL COLLEGE

The "Price" University Scholarship in Anatomy and Physiology of the value of £100, open to students of the Universities of Oxford and Cambridge, has been awarded to A. J. Daly of King's College, Cambridge.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated.

ACADEMIC POST-GRADUATE DIPLOMA IN BACTERIOLOGY.—J. L. Charlton, D. P. Crowle, S. C. Dalrymple, S. Dattilo-Rubbo, J. H. S. Gear, T. S. Gregory, M. H. Salaman, D. F. Stewart, Frances R. Wang, H. Wilkinson.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The following awards of scholarships for 1935–6 are announced: *St. Dunstan's Medical Exhibition:* A. M. Jeans. *Mrs. George M. Smith Scholarship:* M. C. Smith. *Mabel Sharman Crawford Scholarship:* R. E. M. Bowden. *Bostock Scholarship for Women:* A. Glynn. *Dr. Margaret Todd Scholarship:* I. S. Chalmers. *Sarah Holborn Scholarships:* G. M. E. Keevil, M. L. Mittell (special). *Fanny Butler Scholarship:* F. M. Roberts. *A. M. Bird Clinical Scholarship:* M. D. Thomas. *Alfred Langton Scholarship:* E. B. Palmer. *Flora Murray Bursary:* B. E. Barsby. *Ellen Walker Bursary:* D. M. Carr. *Special A. M. Bird Scholarships:* L. M. Bates, E. M. Cumming, J. E. Grant, E. A. Nettell. *A. M. Bird Post-Graduate Scholarship in Pathology:* Margaret A. Jennings, B.M., B.Ch. *Mabel Webb and A. M. Bird Research Scholarship:* F. Charlotte Naish, M.B., B.Ch.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held on M'Ewan Hall on July 17th. The following degrees and diplomas were conferred:

HON. LL.D.—A. N. Richards, Sc.D., Ph.D., Professor of Pharmacology in the University of Pennsylvania.

M.D.—A. A. F. Brown, J. A. Burgess, *J. A. Douglas, G. A. H. Gumley, T. B. Harvey, R. L. Langley, R. P. A. Macaulay, D. T. M'Donald, A. A. Miller, A. A. Robertson.

D.PH.—H. Schild, H. K. Sinha (*in absentia*).

M.B., B.CH.—H. M. Adam, J. D. Allan, J. Allison, G. F. Anderson, K. C. Balfour, P. M. Barclay, Betty B. Barnetson, †A. F. M. Barron, M. Bhattacharjee, D. B. Black, J. B. Borthwick, I. Bortz, W. R. Brewer, A. K. Brooke, S. Brown, †T. H. Brown, R. T. Campbell, J. E. S. Carmichael, W. I. Chalmers, W. A. Coe, C. H. Comrie, W. R. M'K. Couper, J. M. Crawford, W. T. Cumming, H. A. Deverell, H. L. de Waal, J. M. Dick, C. Donald, J. Duncan, J. du Toit-le Roux, Hermione K. E. Egerton, J. N. I. Emblin, †M. R. Ewing, S. Falk, J. A. Farlor, Jean A. Forbes, J. W. Forbes, †I. T. Fraser, H. Friedman, the Hon. A. G. Gathorne-Hardy, Mary D. Gibson, J. Gillan, I. C. Gilliland, †J. C. R. Greig, R. S. Hardie, J. P. Harger, M. S. Harvey, N. S. Hepburn, T. Hepburn, D. S. Hiddleston, M. Hunter, R. M. M. Hunter, J. J. M. Jacobs, J. Jamieson, W. H. Kinstrie, T. A. Knowling, J. C. Lees, W. Limont, M. G. Low, †D. A. Lowe, A. Lutton, S. Lyons, A. M'Diarmid, V. P. M'Donagh, A. M. MacDonald, N. Macdonald, A. M. M'Farlan, T. C. MacInnes, A. C. Mackenzie, A. M. Mackenzie, J. MacKenzie, E. W. Macmillan, M. C. Macqueen, M. S. H. Makarim, O. A. S. Marais, E. G. L. Mark, W. H. C. Masters, J. S. Maxwell, F. O. Mell, Margaret MacK. Methven, G. R. Millar, B. Miller, R. A. Miller, R. Morrison, I. A. Murray, M. Niazi, J. C. Nicholson, A. A. Orr, H. G. Page, J. Park, A. Paterson, J. T. Paterson, H. O. Paton, I. H. Patterson, M. C. Pinkinsky, A. I. Pirie, J. E. Place, H. J. Pratap, A. G. Proverbs, †J. F. Riley, A. J. A. Robertson, K. V. A. Rodgers, J. M'G. Rogan, Leah Rosenbloom, J. B. Ross, C. S. Russell, D. Ryness, J. Scott, W. Serle, W. Simpson, Joan J. V. Spurway, H. Stalker, C. P. Stevens, D. Stevenson, N. F. Stocks, E. W. Stout, A. W. B. Strahan, Marian E. Sturrock, E. C. S. Talbot, A. N. Taylor, Alta F. Thompson, J. W. Thompson, C. H. Thomson, E. L. Thomson, G. M. Thomson, J. Tillman, C. H. Tomlinson, G. F. Valentine, Wilhelmina J. Wagenmaker, R. M. Warren, J. D. Watt, A. B. Weir, Frances M. H. Wilkinson, N. V. Williams, C. M. Wilson, J. F. Wilson, J. L. Wilson, †W. M'I. Wilson, K. M. Wood, D. Wyllie, P. B. Zollott.

DIPLOMA IN PUBLIC HEALTH.—J. F. Caithness, G. W. Gale (*in absentia*), D. R. Huggins, D. J. Morrison, H. P. Tait, C. A. Green, Elspeth M. Warwick, H. Waters.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. Bowesman, A. B. Guild, A. Scott.

DIPLOMA IN PSYCHIATRY.—I. S. Campbell (*in absentia*), M. A. Nasr, C. M. Ross.

DIPLOMA IN RADIOLOGY.—J. A. C. Fleming, J. P. M'Gibbon, A. G. G. Melville, R. E. Verney.

*Commended for thesis. † Passed with honours.

The following prizes were presented: *Cameron Prize in Practical Therapeutics:* Julius Wagner-Jauregg, M.D., Emeritus Professor of Psychiatry and Neuropathology in the University of Vienna, in recognition of his discoveries regarding the malarial treatment of general paralysis. *Ettles Scholarship and Leslie Gold Medal, and Mouat Scholarship in the Practice of Physic:* M. R. Ewing. *Scottish Association for Medical Education of Women Prize:* Frances M. H. Wilkinson. *Murchison Memorial Scholarship in Clinical Medicine:* W. M'I. Wilson. *Buchanan Scholarship in Midwifery and Gynaecology:* I. T. Fraser. *James Scott Scholarship in Midwifery and Gynaecology, and Wightman Prize in Clinical Medicine:* T. H. Brown. *Beaney Prize in Anatomy and Surgery:* T. H. Brown and I. T. Fraser (equal). *Conan Doyle Prize:* J. N. I. Emblin. *Annandale Gold Medal in Clinical Surgery:* W. Simpson. *Royal Victoria Hospital Tuberculosis Trust Gold Medal:* D. A. Lowe. *Murdoch Brown Silver Medal in Clinical Medicine:* A. F. M. Barron. *Dorothy Gilfillan Memorial Prize:* Margaret MacK. Methven. *Pattison Prize in Clinical Surgery, and Sir Robert Jones Prize in Orthopaedic Surgery:* Alta F. Thompson. *Syme Surgical Fellowship:* J. J. M. Brown. *Freeland Barbour Fellowship:* N. G. Steere. *M'Cosh Bursary:* F. J. C. Herrald. *Gunning Victoria Jubilee Prize in Public Health:* C. A. Green. *Gunning Victoria Jubilee Prize in Medicine:* I. MacKenzie and C. E. van Rooyen (jointly). *Wellcome Medals and Prizes in the History of Medicine:* Gold Medal, I. A. G. MacQueen; Silver Medal, E. J. Busher. *Cunningham Memorial Medal and Prize in Anatomy:* D. M. Sheppard; *prox. acc.*, J. M. Barkla.

An address was delivered to the new graduates by the Promotor, Professor R. W. Johnstone, C.B.E., M.D., F.R.C.S.Ed., F.C.O.G.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the Royal College of Physicians of Edinburgh was held on July 16th, with the President, Dr. Edwin Bramwell, in the chair.

Dr. Sorab Kaikhoshru Engineer (Bombay) and Dr. Alexander Hay Rintoul (Crieff) were introduced and took their seats as Fellows of the College.

Drs. Joseph Bryant (Khartum), Hanna Barsoum (Alexandria, Egypt), Ratan Kumar Misra (Delhi, India), and Pritam Varialsing Karamchandani (Waziristan, India) were elected Fellows.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on July 17th, Dr. A. A. H. Sinclair, President, was in the chair.

The following, having passed the requisite examinations, were admitted Fellows:

S. K. N. Chowdhury, E. Jonsson, P. C. Anderson, B. A. Armitage, H. Bell, A. A. Bonar, H. B. Boucher, J. A. P. Cameron, E. A. Davison, W. M. Dennison, K. C. Gharpure, J. P. Heron, B. Holden, J. M. Melvin, J. S. McGregor, D. J. P. Parker, E. R. Rankin, D. Swartz.

The Services

DEATHS IN THE SERVICES

Surgeon Captain John William Craig, R.N. (retired), died at Kirkcudbright on July 3rd. He was the eldest son of the late William Craig of Milnthorp, Castle Douglas, and was educated at Edinburgh University, where he graduated M.B. and C.M. in 1893. Entering the Navy soon after graduation, he became surgeon commander on November 10th, 1910, and retired with an honorary step of rank as surgeon captain on January 1st, 1923. He served on H.M.S. *Agamemnon* in the Dardanelles, and was present at the evacuation of Suvla Bay.

Major Edmond Henry Myles, R.A.M.C. (retired), died at Folkestone on July 14th, aged 78. He was born at Limerick on December 10th, 1856, and was educated at Trinity College, Dublin, where he graduated B.A., M.B., and B.Ch. in 1878. Entering the Army as surgeon on March 6th, 1880, he became surgeon major after twelve years' service, and retired on December 6th, 1902. After retirement he was employed for a time in Guernsey in 1904. He served in the Burmese campaigns in 1885–9 (medal with two clasps) and in the Nile campaign of 1898, when he was present at the Battle of Khartum (medal, Egyptian medal, and clasp). His wife, Alice Caroline Myles, died four months ago.

Obituary

CHARLES GRAHAM GRANT, V.D., L.R.C.P. & S.ED.

Late First Clerk of Arraigns, Central Criminal Court

We regret to record the death, at the age of 71, on July 17th, of Dr. Charles Graham Grant, who had a distinguished and varied career. He was the son of James Dundas Grant, an advocate in the Scottish Courts in Edinburgh, and the brother of Sir James Dundas-Grant. After studying medicine in Edinburgh and London, he qualified with the diplomas L.R.C.P. & S.Ed. in 1885. His first appointments were those of clinical assistant to the Central London Throat and Ear Hospital and clinical obstetrician to the Tower Hamlets Dispensary ; he also served as a ship surgeon for a short time. There followed some twenty years of general practice in the East End of London, where he held the posts of surgeon to the H Division of the Metropolitan Police, medical officer of the Rotherhithe Tunnel works under the London County Council, surgeon to the Poplar Hospital, and medical officer of the East London district of the Post Office. Later on, in 1920, he published in his well-known book, *The Diary of a Police Surgeon*, a realistic account of his experiences in this capacity, which included the famous Sidney Street siege of 1911, at which he was officially present. The human interest of his writing, with its many pathetic, humorous, and macabre touches, made this a very popular book.

Dr. Grant was admitted to the Bar by Gray's Inn in 1910, but the war interrupted this new line of work soon after he had begun to immerse himself in it with his usual energy. Always a keen supporter of the old Volunteer Force, and ultimately a holder of its decoration for long service, he served in the Territorial branch of the R.A.M.C., retiring eventually with the rank of lieutenant-colonel, after having been principal medical officer at the camps at Richmond Park, Wimbledon, and Tadworth. Twenty years ago Dr. Grant was appointed First Clerk of Arraigns at the Central Criminal Court, Old Bailey ; he always sat in the court of the late Common Serjeant, Sir Henry Dickens, with whom he maintained a close friendship. He published a well-devised little book entitled *Practical Forensic Medicine*, and in his earlier life he had often contributed to these columns on clinical and forensic subjects. He was elected a member of the British Medical Association in 1889, and was a vice-president of the Section of Forensic Medicine when the Association held its centenary meeting in London in 1932. Dr. Graham Grant was many-sided also in his hobbies and recreations. He wrote many songs and verses, and was a skilled pianist and organist, a great bridge player, and a good raconteur.

Dr. JESSIE H. GELLATLY, late assistant medical officer for Cambridgeshire, died in a Cambridge nursing home on June 30th after only a week's illness. Born in 1882, she was one of the earliest women students to pass through the Edinburgh medical school. She graduated M.B., Ch.B. in 1906, and M.D. 1910, the subject of her thesis being " The Glass Cubicle System of Isolation " ; and in the same year she took the D.P.H. After acting as assistant medical officer with Messrs. Cadbury at Bournville for three years she was in 1914 appointed assistant medical officer at Cambridge. In 1916 she was granted leave for war work, and served with the R.A.M.C. first in Malta and then in Salonica. After the armistice she worked for the Serbian Relief Fund. On her return to Cambridge she was reappointed under the county council. For twenty-one years, until a week before her death, she carried out the various duties of her office, which included the visiting and inspection of nearly 130 schools twice annually. Her earlier visits were made on a bicycle. She was also giving regular courses of lectures on school hygiene to students of Homerton Training College for teachers, work for which her medical experience in schools specially fitted her. She was widely admired and respected in her public life for her brave and independent personality, and for the thoroughness and selflessness of her work. To a more intimate circle she proved a warm-hearted and loyal friend, whose shrewd judgement was always tempered by a generous, almost maternal, forbearance. She delighted to take a share in the upbringing of her friends' children, and this interest in healthy, happy children may well have been the motive for her life's work. Her friends and relatives are hoping to endow a child's cot at the local hospital in her memory. She leaves behind her many to whom her early death will prove an irreparable loss. Miss M. M. Allan writes: " For more than ten years Dr. Gellatly has lectured on school hygiene to the students of Homerton College. Her qualifications and experience made her contribution to the training of young teachers extraordinarily valuable, for her daily contact with the schools, with the problem of the maintenance of the health of school children, lent reality to her precepts. It was in this daily work in the schools that Dr. Gellatly made her most valuable contribution and formed some of her most lasting friendships. The school teachers in remote country districts found in her not only a wise counsellor but a friend interested in their personal lives, and in their homes as well as their schools she received a warm welcome."

We regret to record the death on July 12th of Dr. LEIGH DAY of Colchester, who was widely known as a first-rate general practitioner and a skilled surgeon, and had been in the past an enthusiastic worker for the British Medical Association. William Leigh Maule Day received his medical training at Oxford and Guy's Hospital. In 1902 he graduated M.B., B.Ch.Oxon, and obtained the diplomas M.R.C.S., L.R.C.P. In Colchester he quickly built up a large general practice, with a specialist surgical side, and was surgeon to the Essex County Hospital, the Harwich Cottage Hospital, and the Severalls Mental Hospital. He was also medical officer to the Post Office and the Board of Education, an examiner for the General Nursing Council, and a medical officer for various insurance societies. During the war he held a commission in the R.A.M.C., and was a specialist in operative surgery with the rank of acting major at the Curragh from 1918 to 1919 ; at the end of the latter year his distinguished work was recognized by the award of the O.B.E. He was a medical referee under the Ministry of Pensions. Dr. Leigh Day joined the British Medical Association in 1903, and took at once a very active part in its activities. From 1905 to 1913 he was honorary secretary of the North-East Essex Division, and was a member of the Representative Body when the Association held its Annual Meeting at Liverpool. In March, 1914, he was presented with an engraved silver bowl by the members of that Division in recognition of his strenuous efforts on behalf of the medical profession generally and of the Division in particular. He contributed frequently to the columns of the *Journal* on surgical topics. He was a keen member of the Colchester Medical Society, and had been president. He had held office as chairman of the Essex Panel and Local Medical Committees.

The following well-known foreign medical men have recently died: Professor ALBERT PLEHN, formerly director of the Urban Hospital of Berlin, aged 74 ; and Dr. VICTOR MORAX, the eminent Paris ophthalmologist, member of the Académie de Médecine, aged 68.

We regret to announce, as we go to press, the death of Dr. JOSEPH HUNTER, who had been M.P. for Dumfriesshire since 1929. Dr. Hunter had held the offices of secretary and chairman of the Dumfries and Galloway Division of the British Medical Association, and for some years acted as representative to the Annual Representative Meeting.

CARE OF THE QUETTA CASUALTIES

The following note on the after-care of Quetta casualties, by Lieut.-Colonel W. Ross Stewart, I.M.S., Surgeon to the Viceroy, has been received from the India Office :

It was a wise decision to distribute early the most severely injured patients to the best-equipped surgical centre within reach of Quetta. All honour is due to the doctors and nurses who rendered first aid of a very high standard at the scene of the earthquake on May 31st, 1935, to the railway authorities and willing helpers who facilitated the dispatch of the injured and their reception at railway platforms en route and on arrival, and to those who fed and clothed them.

TREATMENT OF FRACTURES

At His Excellency's visit to the chief surgical centre at the Mayo Hospital, Lahore, on July 2nd—that is, a month after the earthquake—one was struck with one outstanding fact—namely, that the Indian patients of both sexes suffering from severe fractures were brought under surgical treatment of a standard which one usually associates with the most highly specialized fracture clinics of the United Kingdom, Vienna, or America. The organization whereby all cases of fracture of the spine, fracture of the pelvis, and fractured thigh were collected together in separate wards was most efficient, while the detailed treatment applied to each individual case was an ocular demonstration of the treatment recommended by, and illustrated in, the most modern textbooks. "Balkan frames," fitted with adjustable pulleys, weights, and traction cable, were available for all cases, and "stop-up" supports, to raise the foot of the beds to obtain counter-traction, had all been improvised. Several dozens of fractured thigh cases requiring extension were treated by means of stainless steel pins transfixing soft tissues and bone, attached by a stirrup to the traction cable, pulley, and weight. In other cases Kirschner wire was used, with the appropriate design of stirrup for this variety. In no single case was there a sign of septic infection of the soft tissues or bone so transfixed, and the patients were invariably comfortable. The limbs were supported in flannel slings on Braun's cradles.

The success of this treatment was evidenced (1) by the marked absence of pain, which would have been expected from inspection of the *x*-ray photographs taken before treatment was begun, and (2) by the perfect alignment of the limbs as the result of treatment. Most of these cases had been put up under local anaesthesia. Further evidence of the success of this method will undoubtedly be forthcoming when solid union can be studied, and when the absence of stiffness in adjoining joints reveals itself. Patients can look forward to an earlier return to their occupations and to a greatly diminished final deformity. Many cases of fractured pelvis were treated by pin or wire traction applied to both lower limbs, which will save a large proportion from being badly crippled later on.

The old-fashioned methods of treatment by padded splints were conspicuous by their absence. "Aeroplane" splinting combined with transfixion and spring traction was being used for fractures of the upper arm, with corresponding advantage, and allowing of helpful movements of surrounding joints with no disturbance of the alignment of the fractured area. Fixation by plaster-of-Paris was of first-class quality, each plaster case bearing a tracing in ink of the *x*-ray picture, and all relative data written thereon. Fractured spines had all been reduced on a special table, and were being given the best possible chance of recovery.

ORGANIZATION OF SURGICAL UNIT

This counsel of perfection indicated that a host of workers had contributed to organize this surgical clinic, and to provide apparatus which, though improvised, bore none of the usual features of improvised equipment.

Lieut.-Colonel D. H. Rai, I.M.S., Officiating Inspector-General of Civil Hospitals, Punjab, and Lieut.-Colonel J. J. Harper Nelson, I.M.S., Principal of the King Edward Medical College (now on leave), had much to do with the provision of this surgical unit and the expansion of beds, but it is agreed that this exceptional standard of treatment is the direct outcome of the vision, energy, and skill of Lieut.-Colonel V. R. Mirajkar, I.M.S., professor of operative surgery, King Edward Medical College, and superintendent of the Mayo Hospital, Lahore. Apart from the kindness which has surrounded these patients, there is no doubt that they have received collectively and individually a surgical service which could not be bettered in any country in the world—a matter of comfort to all concerned in the Quetta catastrophe.

At His Excellency's subsequent visits to hospitals at Multan, Mastung, Quetta itself, and finally Karachi, there was ample confirmation of the resourcefulness of all doctors and nurses, and their unfailing devotion to the patients consigned to their care. All are worthy of the traditions of their profession, but special mention of the arrangements at Lahore is made because of the extremely capable manner in which the medical staff there dealt with the heavy task of treating large numbers of very severely injured victims.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

It is hoped to adjourn Parliament for the Summer Recess on August 2nd, though there is great pressure of business and the Session will have to be completed in the autumn. The House of Commons this week discussed Naval policy, the distressed areas, and the votes for the Mines Department and Colonial Office. All outstanding estimates were put from the chair without debate.

The Urmston Urban District Council Bill was read a third time in the House of Commons on July 16th. The Fylde, Preston, and Garstang Joint Small-pox Hospital District Bill and the Ottershaw Joint Hospital District Bill were read a second time in the House of Commons on July 17th. The Hertfordshire County Council Bill was reported from a Standing Committee of the Commons with amendments on July 18th. All the above Bills have passed the House of Lords.

The House of Commons, on July 18th, on the motion of Dr. Burgin, agreed to an additional import duty of 5 per cent., making 15 per cent. in all, upon imports of citrus fruit juices, unfermented, and not containing added spirits or added sweetening matter.

In the House of Lords on July 22nd the Unemployment Insurance (Crediting of Contributions) Bill, the National Health Insurance and Contributory Pensions Bill, and the Public Health (Water and Sewerage) (Scotland) Bill were read a second time.

On July 22nd the committee stage of the Housing (Scotland) Bill was concluded in the House of Lords.

In the House of Commons on July 22nd the St. Bartholomew's Hospital Bill was agreed to on the report stage.

The Restriction of Ribbon Development Bill was reported from a Standing Committee of the House of Commons, with amendments, on July 23rd. On the same day the Fylde, Preston, and Garstang Joint Small-pox Hospital Bill and the Ottershaw Joint Hospital District Bill were returned to the Commons from Select Committees without amendments.

In the House of Lords, on July 23rd, the London Passenger Transport Board (Finance) Bill was read a second time, and the Hours of Employment (Conventions) Bill passed through committee.

[Pressure upon our space this week compels us to hold over the report of the debate in the House of Commons on the Ministry of Health Vote, introduced by Sir Kingsley Wood on July 17th.]

Industrial Accidents and Diseases

DEBATE ON HOME OFFICE VOTE

In the House of Commons, on July 16th, the Home Office Vote was considered in committee. Sir JOHN SIMON, in presenting the Estimates, referred to the annual report of the Chief Inspector of Factories for 1934, in which, he said, there was a striking passage as to the excessive number of accidents among juveniles, though happily the fatality rate was low. The Chief Inspector gave some most disturbing figures, and the excess of accidents among young persons appeared to be general throughout the whole of industry. The Chief Inspector pointed out that the true solution lay in the good will and voluntary efforts of employers and others, and he gave various hints on the steps which might usefully be taken, more particularly in the better training and supervision of boys and girls in the early days of their employment. It was evidently a matter of the very greatest importance, and one which should receive the special attention of all concerned. Sir John Simon added that he had sent a letter to the National Confederation of Employers' Organizations specifically inviting them to look into this question with a view to a conference with the Department in the early autumn.

LEAD POISONING AND SILICOSIS

Mr. RHYS DAVIES moved the reduction of the vote by £100. He first asked the Home Secretary to look into the problem of whipping boys by the order of the court; he hoped the Department would continue to discourage this practice. The worst feature of the annual report of the Chief Inspector of Factories and Workshops, he continued, was that accidents reported had increased from 113,260 in 1933 to 136,858 in 1934, roughly an increase of 5,600. Over the same period there was an increase of fatal accidents from 688 to 785. That was probably the biggest increase ever recorded in the history of factory inspection. The explanation given was that more people were employed in industry, but the percentage increase of reported accidents was far higher than the percentage increase in the number of workpeople employed. In regard to industrial diseases also the report showed a serious state of affairs. There was an increase over the previous year of thirty new cases of lead poisoning, and an increase of six deaths from the same cause. Even in the painting of buildings there was an increase in lead poisoning, both as to new cases and as to the number of deaths. The most extraordinary anomaly of all was that while safety organization in factories was growing there was almost a proportionate increase in industrial diseases and accidents. The only redeeming feature was in the case of silicosis in the pottery industry, which showed a declining rate. There was also a serious increase in industrial disease among those employed in chromium plating and those handling pitch, tar, and oil. He found 423 persons died from pitch and kindred cancers from 1920 to 1924.

Mr. PIKE asked if Mr. Davies would say what was the cause of the increase in the chromium plating figures. Mr. DAVIES replied that that was a problem for medical men, and he believed they were inquiring into the question. Cases due to fuels and gases were 179 in 1934, compared with 149 in 1935, and there were twenty-one deaths in 1934 as against only fourteen in 1933. Wherever he looked in this report the accident and the disease rates were increasing at an alarming speed. The House ought to know the reason why. Negotiations had been proceeding for some time past between the Home Office and the employers in the Lancashire textile industry regarding those men who suffered from asthma and bronchitis consequent upon dust in card-rooms. It was very difficult to schedule this disease for workmen's compensation, but if that could not be done perhaps the Home Office could say what was going to happen to these men.

Mr. PIKE pointed out that the report of the Chief Inspector of Factories stated, with reference to the increase in lead poisoning, that this was "mainly the outcome of the increase in the building of houses, and in some measure of an influx into the industry of untrained workers under the supervision of persons not yet fully alive to the high standard of cleanliness required under the regulations to control the lead risk." That significant fact meant that those responsible were fully alive to the cause of the increase, and were doing their utmost to eliminate any repetition. The report continued: "Of the twenty-six cases in the pottery industry, sixteen occurred in the manufacture of highly decorated tiles. . . . The tile under consideration is a marl tile, the manufacture of which lessens the risk of silicosis but increases the risk of lead poisoning owing to the highly leaded glaze used." If the increase in lead poisoning had been due to a specific cause which automatically had brought about a reduction in silicosis, it was a tribute, and should not be made the basis of an accusation against the officers responsible for this great service. The hon. member had accused the Home Office of allowing the painting of houses to be carried on under such conditions that lead poisoning was almost unpreventable. The report, however, said: "While there has been a slight increase, both in the number of cases of poisoning and death, in view of the increase in the building industry, it is perhaps surprising that the number of cases, at any rate, is not greater. I cannot think, however, that notification by the medical practitioner is as complete as it might be." The report also directly contradicted Mr. Davies's allegation in regard to chrome ulceration, for it said: "The increase in the number of cases of chrome ulceration is attributable to the further extended use of the process of chromium plating."

DUPUYTREN'S CONTRACTION

Mr. TINKER said that many members, especially those who represented industrial areas, had come across a new form of disease known by the peculiar term "Dupuytren's contraction," which meant contraction of the hand. This condition seemed to be brought about by the thickening of the tissues in the centre of the hand, originated by excessive use of a spade or pick. A man's hand gradually contracted until he could hardly pick up the implement. There was nothing in the Workmen's Compensation Act, however, to protect a man with this condition. The matter had been brought to the notice of the Home Office, who examined it, and declared that there was not sufficient evidence to warrant the inclusion of the disease in the schedule of industrial diseases. He hoped that the new Minister would not let the matter stop at that.

MEDICAL REFEREES

Another question was that of medical referees. When a man was regarded as recovering, the employer had to examine him, and if the man was well on the way to recovery he could serve him with ten days' notice. The man could get a medical opinion, which might be that he was not recovering. The matter was then referred to a medical referee. It passed through the register of the county court, and at the end of ten days came before a medical referee for examination. He had no fault to find with the method up to that point, because the man must have compensation to the end of the ten days. His complaint was in regard to the length of time that elapsed after the ten days before the man got to the medical referee. He had records of cases in his possession in which one, two, or three months had elapsed. If there was not a permanent injury the man was gradually recovering, and at the end of two months a lot of the damage would have passed away; at the end of three months it might have gone altogether. Could not the Home Office lay it down that at the end of ten days the man should be paid his compensation until he went before the medical referee; or that, at the end of a reasonable time, say a fortnight, if the man had not then been before the medical referee owing to the fault of the employer compensation should be paid to him until he did go before the medical referee? At present there was only one medical referee who decided on these cases. It did not matter how many doctors might have said that a man was suffering from a particular disease or accident; he went before the medical referee, who alone had the power to decide his fate. The Miners' Federation took such a serious view of this matter that it had asked whether it was not possible, at least in extreme cases, that there should be more than one medical referee to decide on the condition of the man.

Sir ARNOLD WILSON drew attention to the increasing frequency of accidents in electrical lifts in large towns. He said they should be notified, and he hoped that the Home Office, which had already undertaken to examine that question closely, would be able to make some statement on that

subject before long. He endorsed Mr. Tinker's plea in regard to the subject of a medical referee. The doctor was coming more and more into our lives, and his position in such matters should be that of an assessor or witness, who should give his technical advice, and the final decision whether a man was, or was not, suffering from a given disease—a matter upon which his whole future depended—should be given by a judicial authority, a referee—someone learned in the law—who had to assist him, on the question of evidence, one or more medical men of high repute sitting as assessors and not acting as judges. Contracting hand, to which Mr. Tinker had referred, was not a new disease. It was admittedly obscure, but he could see no reason why, with the Industrial Health Research Board at the disposal of the Home Office, every single case of that disease which was reported should not be specifically examined by a doctor reputed for that purpose. Within a year or two a final decision concerning this condition might then be reached. Mr. LYONS suggested that any concern utilizing a new type of invention, such as chromium plating, should be specifically asked not to wait for fortnightly or monthly inspections, but to make the period very much shorter, and to introduce medical supervision daily, if necessary, to prevent the danger to employees which must arise. Finally, he asked the Home Secretary if the time was not now ripe for a real review of the schedule of industrial diseases.

POISONS BOARD REPORT

Mr. FLEMING drew attention to the carrying out of the provisions of the Drugs Act of 1920. He said there had been a report from the Posions Board with regard to the people who should be qualified and permitted to dispense drugs. He agreed entirely that the public should be protected as far as possible, but the Home Office ought to take the greatest care to see that, if it acted upon that report, it was not going to cause unemployment among people who were more qualified to do that work than the people recommended by the Board. Referring to the report of the Poisons Board, he said he was informed that this recommended that the only people to have any voice or control in the manufacture of poisons were those who were members of the Institute of Chemists. He was also informed that that would exclude 60 per cent. of the chemical profession, including the members of the British Association of Chemists. If it was true, it was obviously an injustice and a hardship.

REVISION OF INDUSTRIAL DISEASES ORDERS

Mr. JOHN pointed to the need of expanding the schedule of industrial diseases. The experience of the last thirty years had shown that from time to time new diseases were discovered, consequent upon changes in the nature of occupations, and that those diseases were not scheduled under the Compensation Act. Again, experience proved the need of revising some of the Orders already in existence. There were to-day hundreds of men who had been certified as suffering from silicosis, but merely because they were suffering from silicosis prior to the date mentioned in the Order—namely, October, 1934—it was impossible for them to establish their claims. The Order was confined to underground operations, but there were a large number of surface men certified as suffering from silicosis. No matter when or where a man contracted the disease certification ought to entitle him to compensation. Then there was the question of aggravation and acceleration. In the case of an ordinary accident, if a man died and the doctor certified that the accident had aggravated death, the widow and orphans were entitled to compensation; but if he died of heart failure or pneumonia, notwithstanding the fact that the doctor certified that silicosis had aggravated or accelerated death, the widow and orphans were not entitled to compensation. A disease similar to silicosis was anthracosis. It was getting very prevalent in the coalfields, and medical science through the College of Physicians was taking a keen interest in it. He asked the Home Secretary to ascertain to what extent this disease existed in the coalfields, and to see whether it was possible without much delay to make an Order to enable a man suffering from anthracosis to be entitled to compensation. Mr. John said he would like to see co-operation between research work of the Mines Department and that of the Home Department, and to see that, once a Department had arrived at the conclusion that a particular means of prevention was a good thing, it was made compulsory upon the employers to adopt it.

REPLY TO THE DEBATE

Captain WALLACE, replying to the debate, said that reference had been made to what was regarded as the deficiency in the staff of the factory inspectorate, but the 254 inspectors which it had at the moment were fourteen more than it had last year and seven above the maximum number it had ever had. Mr. Tinker had mentioned a particular disease known as Dupuytren's contraction, and he wanted it put on the schedule of industrial diseases. The difficulty about that matter was that on the advice of the expert Departmental Committee we had not at present sufficient evidence to do this. The Home Office would keep this question, and all other medical questions of the kind, very closely under review. With regard to medical referees and delay in decisions, he was sure that the whole committee was very pleased with the answer given by the Home Secretary, in which he announced that they proposed to set up a Departmental Committee to examine that and several other cognate questions. The increase of accidents, regrettable as it was, must definitely be ascribed to the causes which had already been mentioned by several members: the general expansion of trade; the fact that men were coming back into work after long periods of unemployment; and the fact that the general industrial reorganization now proceeding in this country, the result of invention and changes in economic conditions, produced a very large number of new processes. There was no doubt that in connexion with these new processes we had more accidents. That there was a high proportion of the accidents among juveniles appeared to him to indicate rather failure of the human factor than the inadequacy of the material precaution. He was certain that that must be pursued by means of training at school and training when the young people entered the factories for the first time.

The motion to reduce the vote was negatived, and the debate was adjourned.

Selection of Children for Free Meals

Sir WILLIAM JENKINS asked, on July 11th, if the President of the Board of Education would give reasonable discretion to local education authorities to grant free meals or free milk to any child when it was within the definite knowledge of the authority that the economic conditions in the child's home were exceptional. Mr. OLIVER STANLEY replied that the attitude of the Board of Education was set out in a letter dated November 14th, 1934, to the secretary to the Association of Education Committees. In general he agreed that the economic conditions of the home were a factor to which full weight should be given in considering how much importance should be attached to any physical signs or educational symptoms which may be noted by the medical officer or by the teacher.

In an answer to Mr. R. A. Spencer on July 18th, Mr. STANLEY said the Board of Education had made it clear that before free meals or milk were withdrawn a sufficient period should be allowed for the child's health to become firmly established. The Board would regard it as reasonable to take into account the conditions under which the child was living, and to take special precautions where those conditions were such that deterioration was probable if the meals were discontinued.

Mr. MORGAN JONES asked, on July 18th, whether the attention of Mr. Stanley had been called to the instruction given by the Conference of the Association of Education Committees to its executive to go into the legal aspect of Circular 1437 in relation to the selection of children for free milk and meals; and whether, in view of the opposition of local education authorities to the circular and the resolution adopted by the Council of the British Medical Association that the onus should not be placed upon a medical officer of determining in every case that a scholar was presenting evidence of subnormal nutrition before free milk or meals were provided, Mr. Stanley proposed to withdraw Circular 1437. Mr. STANLEY said that, though aware of the instruction mentioned by Mr. Morgan Jones, he did not propose to withdraw Circular 1437. He was satisfied that the system recom-

mended by the Board provided the most effective means of securing that meals or milk were supplied to children who needed them in order that they might obtain full advantage from their education, and that under any other system many such children might be overlooked. While the system recommended by the Board was opposed by some local education authorities, many authorities selected children on the basis outlined in the circular. Mr. MORGAN JONES asked whether Mr. Stanley had taken advice on the legality of imposing on medical officers the onus of determining, before free milk or meals were provided, whether a child presented evidence of subnormal nutrition. Mr. STANLEY said all these points had been considered.

Dr. ADDISON asked if Mr. Stanley had availed himself of the advice given by experts a year ago on the necessity of these children receiving milk. No answer was returned.

N.H.I. Unclaimed Stamps Fund

Mr. THORNE, on July 18th, asked what was the balance in the unclaimed stamp fund in connexion with the National Health Insurance Act. Sir KINGSLEY WOOD replied that the annual balance in the national health insurance funds in respect of unclaimed stamps in recent years was estimated to be about £300,000, of which under the existing law nine-tenths was payable to the Central Fund and the remaining one-tenth was to be applied in such manner as might be prescribed. Final claims in respect of stamps were not received until long after the actual sales, so the total balance at any date cannot be ascertained until some years had elapsed. At the beginning of 1933 there was an estimated balance of about £850,000, which had not yet been divided between the Central Fund and other purposes for which the money was available. Some part of this balance must be reserved to safeguard the cost of the new maternity benefits under the present Bill. The Central Fund assisted approved societies.

Criminal Lunatics Bill

The Criminal Lunatics (Scotland) Bill passed through the report stage and was read a third time in the House of Commons on July 19th. During the report stage Mr. JAMIESON moved an amendment in fulfilment of a promise given to critics of the Bill in committee. Mr. Jamieson said his amendment, along with those inserted in committee, would provide that where a person serving a sentence was found to be insane, but his insanity was such that he was unsuitable to send to an ordinary asylum, he would be sent to a criminal lunatic asylum and opportunity would be given to have him examined by his own doctor. That doctor's report would be considered by the Secretary for Scotland, who would review the whole situation and make such order as might be necessary. On the expiry of the sentence, if the person was not yet fit to be set at liberty on account of his insanity and not fit to be sent to an ordinary asylum, certification to that effect would be given by two medical practitioners, one of whom was not to be in the prison service. An opportunity would be given at that time for the person to be examined by his own doctor, and the Secretary for Scotland, on receiving the reports, would consider the whole of the circumstances before making an order. Mr. Neil Maclean and Mr. Maxton thanked the Lord Advocate (Mr. Jamieson). Mr. MAXTON said he and his friends knew the difficulties that confronted those who were charged with the duty of dealing with the criminal lunatic, and were anxious not to make their task more difficult.

The House then agreed to the amendment and the Bill was read a third time without debate. It had already passed the House of Lords.

Medical Advice to Ministry of Health

On July 22nd Mr. R. S. HUDSON, replying to Mr. Whiteside, who asked if there was an independent tribunal of doctors to whom the Minister of Pensions referred in the event of divergence of opinion between the Ministry's doctors and other medical authorities, said that arrangements were in force which enabled him to obtain the independent advice of eminent specialists nominated for the purpose by the Presidents of the Royal Colleges of Physicians and Surgeons, in cases which presented serious doubt or difficulty on the evidence. Responsibility for the ultimate decision, except where an appeal could still be made to a statutory tribunal, must rest with the Minister. Mr. Whiteside further asked whether, as Henry Fisher of Brompton Row, Leeds, was totally unfit for work, and in view of the highest medical authority at the Leeds Infirmary his disability was due to a piece of shrapnel lodged in his chest, the Minister would consider increasing Fisher's pension. Mr. Hudson replied that in view of the strong opinion expressed by the surgeon at Leeds Infirmary, the whole case, including opinions in favour of the claim, was submitted to an eminent independent specialist nominated by the President of the Royal College of Physicians, who confirmed the view of the Department that, on the available evidence, it could not be said that Fisher's condition was due to the presence of a retained foreign body. Therefore Mr. Hudson could not increase the pension.

Supervisors of Manufacture of Pharmaceutical Preparations

Sir John Simon has promised to consider representations from Sir Ernest Graham-Little and others concerning the restrictions under the draft rules submitted by the Poisons Board of persons supervising the manufacture of pharmaceutical preparations containing any poison used in internal treatment of human ailments.

Coloured Population of Cardiff.—Mr. BALDWIN informed Captain Arthur Evans, on July 15th, that the report of the Joint Committee of the British Social Hygiene Council and the British Council of the Mercantile Marine on the conditions of the coloured and half-caste population domiciled in Cardiff would be considered by the departments concerned. Until that had been done it was not possible to say if a further inquiry into the subject was necessary.

Civilian Respirators.—Answering Mr. Mallalieu on July 18th, Sir JOHN SIMON said the respirators which the Home Office had at present arranged to obtain for civilian purposes would be supplied by the War Office. No orders had yet been placed for any other equipment for air raid precautions services.

Medical News

The House of the British Medical Association, including the Library, will be closed from 6 p.m. on Friday, August 2nd, to 9 a.m. on Tuesday, August 6th. For the purpose of necessary redecoration and repair the Library will be closed for three weeks from Saturday, August 10th.

The Royal College of Physicians of London will be closed for cleaning, etc., from Thursday, August 1st, to Saturday, September 14th, both days inclusive.

The Presidents and Councils of the Royal College of Physicians and the Royal College of Surgeons are holding receptions to meet the members of the International Neurological Congress on Tuesday evening, July 30th.

The annual meeting of council of the National Institute for the Deaf will be held in the Leo Bonn Memorial Hall, at the new headquarters, 105, Gower Street, W.C., on Tuesday, July 30th, at 3 p.m., with the president, Lord Charnwood, in the chair.

An International Congress for the Scientific Study of Population Problems will be held in Berlin from August 26th to September 1st, and will deal more particularly with births, racial hygiene, and the protection and maintenance of life. Papers will also be read on statistical inquiries; social, economic, and psychological topics affecting the community; and general questions relating to medicine, hygiene, and anthropology. Further information may be obtained from the Geschäftsstelle des Internationalen Kongresses für Bevölkerungswissenschaft, Einemstrasse 11, Berlin, W.62.

Under the auspices of the *Journal Suisse de Médecine* an international medical week will be held at Montreux from September 9th to 14th. Sir Henry Dale will read a paper on the pharmacology of ergot, and other speakers will deal with digitalis therapy and the prophylaxis of goitre. Vitamin and hormone therapy will also be discussed. Sessions have been arranged on internal pathology, paediatrics, cancer and radiotherapy, and balneology. Specially reduced terms will be available on the Swiss railways and in hotels. The fee for the congress is 10 Swiss francs. Further information may be obtained from the secretary of the Swiss Medical International Medical Week, Klosterberg 27, Basle.

The first International Congress on Transfusion of the Blood will be held at Rome from September 26th to 29th, when the following subjects, among others, will be discussed: the biological and clinical problems connected with the most recent indications for transfusion of the blood, by Professor A. M. Dogliotti of Turin; transfusion of the blood in infectious diseases, by Dr. A. Tzanck of Paris; the nature and treatment of haemolytic shock after transfusion of the blood, by Professor E. Hesse of Leningrad; and transfusion of the blood in the Army, by Professor A. Ritter of Münsterlingen.

The tenth International Congress of the History of Medicine, to be held at Madrid from September 23rd to the 29th, will include visits to Toledo, where the congress will be opened by the President of the Spanish Republic, the Escorial, the Silos and Guadalupe monasteries, receptions in Madrid itself, and an exhibition of manuscripts, books, and instruments of medico-historical interest. The chair at the scientific meetings will be taken in succession by Professors A. Capparoni of Padua, A. de Silva Carvalho of Lisbon, Victor Gomoiu of Bucarest, Laignel Lavastine of Paris, Sir Humphry Rolleston, the British delegate, and Professor G. Marañon, the president of the Congress. The Royal Society of Medicine will be represented by Dr. J. D. Rolleston and Dr. J. E. Halls Dally, and the University of Edinburgh by Dr. John Comrie.

The first Brazilian Congress on Cancer, which has been organized by the Brazilian Society of Medicine and Surgery, will be held at Rio de Janeiro from October 20th to 27th, when the subjects for discussion, among others, will be the clinical aspects of the precancerous stage, classification of cancer, and the mortality of cancer in Brazil. Further information can be obtained from the Executive Committee, Avenida Mem de Sa, Rio de Janeiro.

A post-graduate course in gynaecology will be held under the direction of Professor R. Proust at the Hôpital Broca, Paris, from September 16th to 28th. The fee is 200 francs.

The eleventh annual meeting of the American Association of the History of Medicine was dedicated to the memory of Joseph O'Dwyer of New York, who fifty years ago introduced his improved method of intubation for the treatment of laryngeal diphtheria.

With reference to the announcement of the twenty-eighth Voyage d'Etudes Médicales (*Journal*, July 6th, p. 46) we are now informed that circumstances beyond the control of the organizing committee have obliged them to cancel this tour.

The twelfth annual report of the *Journal of the American Medical Association*, on the diphtheria mortality in the ninety-three cities of the United States with a population of 100,000 or over, shows that the diphtheria death rate per 100,000 inhabitants ranged from 1.63 for the Middle Atlantic States to 7 in the East South Central. Of the fifteen cities without a single death from diphtheria in 1934 four were in New England, four in the Mountain and Pacific States, three from both the Middle Atlantic and East North Central groups, and one from the West North Central group.

The issue of *Wiener medizinische Wochenschrift* for July 13th is dedicated, on the occasion of his seventieth birthday, to the well-known abdominal surgeon Professor Julius Schnitzler, brother of the late Arthur Schnitzler, the novelist and playwright, who was also a member of the medical profession.

A new medical society, named the "Violon d'Ingres," has been founded in Paris for doctors who are fond of literature and the arts. Further information can be obtained from Dr. Groc, 14, Rue des Minimes, Paris.

The first meeting of the Italian Society of Haematology was recently held at Pavia, under the presidency of Professor Ferrata.

The King has confirmed the appointment of Dr. Lawson Gifford and Major Thomas John Hallinan, C.B.E., to be nominated members of the Legislative Council of the Island of Jamaica.

Professors A. Bochard and O. Nordmann have succeeded Professor Korte, who has reached the age of 82, in the editorship of the *Archiv für klinische Chirurgie*.

Professor Arthus of Lausanne has been awarded the Monaco prize of 100,000 francs for his work on the physiology of poisons.

Dr. Tanon, professor of hygiene in the Paris Faculty of Medicine and member of the Superior Council of Hygiene of France, has been elected a member of the Académie de Médecine in the Section of Hygiene.

The general mortality at Buenos Aires has fallen from 22.8 per 1,000 in 1855 to 20 in 1900, 14.3 in 1920, 12.7 in 1928, and 12.3 in 1931, and the typhoid mortality from 88.6 per 100,000 inhabitants in 1870 to 23.5 in 1900, 10 in 1920, 4.5 in 1928, and 2.7 in 1931.

Busts of Koch and Röntgen have been added to the German Museum at Munich, on the occasion of the tenth anniversary of its foundation.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Alopecia in Early Life

Dr. S. S. HOFFMANN (Ladysmith) writes: I shall be indeed grateful if any of your readers can suggest treatment in a case of alopecia areata which seems to be running a rapid and hopeless course. The patient is a girl aged 14. In addition to the usual rubefacients, ultra-violet ray treatment, and endocrine preparations, a careful search was made for a possible septic focus, but without success.

Car Sickness in Children

"H. V." writes: Will any readers advise me as to a remedy for "car sickness" in children? My small girl, aged 3½ years, is a real sufferer, and it is impossible to take her any distance without sickness coming on. As I am hoping to go away for my annual holiday shortly the question is becoming acute.

Frequency of Micturition

"N. B. S." (Scotland) writes: I have a lady, aged 70, much troubled with frequency of micturition. She cannot retain urine more than an hour and a half. No abnormality of parts; no cystitis so far as urine indicates; urine free of albumin and sugar. I have tried various remedies, including belladonna, which has been pushed to the extent of dryness of mouth and much thirst. I shall be indebted if anyone could advise a remedy that has been found successful in such a case. There is distress resulting from this condition, since the patient can go nowhere unless facilities exist for micturition.

Staphylococcus Vaccine

DR. ERIC KENDERDINE (Coventry) writes: The introduction of staphylococcus toxoid leads me to wonder whether the vaccine question has yet been fully discussed. Perhaps these few words will arouse some useful criticism. My impression is that many septic conditions, including lymphangitis too early for surgery, boils, and carbuncles are adequately dealt with by heroic doses of staphylococcus mixed vaccine used contemporaneously with manganese, provided carbohydrate metabolism is also adjusted. It is interesting to me to see in a carbuncle the many smaller and shallower ulcers left behind when sloughing is finished, instead of one big deep ulcer, which results from ordinary treatment. Also interesting are residual pockets at the margin which when emptied reveal not pus, but clear, serous fluid. This vaccine also, I have thought, definitely aids the gonococcus vaccine. In conclusion, I have a query. A year or so ago a lady developed cystitis a month before her baby was due. A whitlow began a week before the confinement, and as the matter seemed urgent vaccine was given. The whitlow did quite well, but, more of interest in this bearing, the cystitis ceased abruptly. Was this coincidence? Later labour and puerperium were normal. I am told that admissions to hospitals for carbuncles have declined markedly; I am sure the incidence of the disease has not declined. Quite the reverse. Perhaps my fellow general practitioners will say how they are curing their cases.

Income Tax

Payment of Interest on Loan

"A. B." puts the following inquiry. A. lends £2,500 to B. at 3½ per cent. interest—that is, £87 10s. a year. How is the transaction treated for income tax?

*** Whether B. includes the £87 10s. in his statement of expenses is immaterial; in either case it will not be allowed as a deduction, and B. will therefore pay tax on (*a*) his own earnings and (*b*) the £87 10s. interest. As and when he pays the interest he will deduct the tax at the standard rate—for example, instead of paying £43 15s. for a half-year he will pay £43 15s. less £9 16s. 10d. = £33 18s. 2d. B. is thus recouped for the payment by him on the excess over his own earnings and A. receives his interest under deduction of tax. B. will find a special space in the statement of total income for giving particulars of the loan.

Obsolescence of Car

"J. B. F." has been refused an obsolescence allowance because the car has not been replaced. Is this correct?

*** Yes. The allowance is governed by Rule 7 applying to Cases I and II, Schedule D, and provides for the deduction of "so much of any amount expended in that year in replacing any plant or machinery," etc. If nothing has been so expended no "obsolescence" allowance can be claimed.

LETTERS, NOTES, ETC.

Poradenitis Venerea

MR. J. E. R. MCDONAGH, F.R.C.S., writes: Having been particularly interested in poradenitis venerea for several years, may I be permitted to mention some of the inferences I have been able to draw from the cases I have studied. I exhibited the first case shown in this country in 1925, since when I have had five others. The causative micro-organism is a form of the *Bacillus gangraenae cutis*, which is closely allied to Ducrey's bacillus in that both have been generated by Morgan's bacillus. Morgan's bacillus heads the *proteus* group of micro-organisms, which, I believe, are mutation forms of the *B. coli communis*. The *B. coli communis* has mutated in several directions, and the forms generated can be arranged along each as upon the rungs of a ladder. The *proteus* group of micro-organisms I have placed on Ladder IV. The highest rung on Ladder II is occupied by Friedländer's bacillus, and one of the forms this micro-organism has generated is the cause of granuloma venereum. Lymphogranuloma inguinale and granuloma venereum are two of the most chronic lesions met with in medicine, and to the list can be added ulcus molle serpiginosum and rhinoscleroma. The chronic ulcer is caused by Ducrey's bacillus and the nasal lesion by a subbacillary phase of Friedländer's bacillus. Surely it must be more than a coincidence that lesions equally chronic and affecting the genitals are caused by micro-organisms which occupy the highest rungs of their respective ladders. Frei's antigen is not specific, as it is capable of giving positive results in patients who are the victims at the time of examination of the activity of Morgan's bacillus. The *proteus* group of micro-organisms has been growing progressively more active since 1930, and particularly so since 1932, which would account for the higher incidence of lymphogranuloma inguinale recently. Against an ultramicroscopic virus being the cause is the chronicity of the lesion. The constitution of the filterable phase of a micro-organism forbids its causing other than an acute lesion. Filterable viruses can readily be isolated from chronic lesions and from the cells of the host as well as from the bodies of bacteria. Moreover, once bacteria have invaded lesions they may be made to develop into smaller phases in them. Finally, had we not been living in the ultramicroscopic virus era, search for one would never have been made in lymphogranuloma inguinale, and no manifestation of disease illustrates better than this one the disadvantage of conducting research on preconceived ideas.

Compulsory Vaccination in Norway

P. M. HOLST, writing in *Norsk Magazin for Laegevidenskaben* (March, 1935), concludes that compulsory vaccination in Norway has become an anachronism. It is still illegal not to be vaccinated, and the clergy of the State Church are supposed to require a certificate of vaccination from candidates for confirmation. Of late years there has been a great increase in the number of more or less conscientious objectors, who are fortified by the lack of disciplinary measures to enforce the law, and by a knowledge of the risks of encephalitis following vaccination. In Norway alone sixty such cases have been observed, and twenty-eight of them have proved fatal. The author admits that all Norwegian doctors acknowledge the value of vaccination as a preventive of small-pox, but he finds that the possibility of post-vaccinial encephalitis makes them diffident in urging it upon their patients. He is in favour of making vaccination entirely voluntary, and of abolishing a law which has become less and less operative.

Orthography and Medical Education

THE HON. VENETIA BARING writes from Edinburgh: As a regular reader of the *British Medical Journal* my eye was caught by the letter from Dr. C. H. Milburn of Harrogate in the issue of July 13th on the subject of "The General Education of the Doctor." Your correspondent appears to think that failure to spell a word correctly where technical terms are concerned may indicate "incorrect knowledge." Spelling, particularly of words containing vowels, which are often easily transposed, presents chronic difficulty to many people when writing, and if in a hurry they naturally use the letter which is in their mind as the most likely without thinking whether it is correct or otherwise. I have known personally a lawyer to whom spelling presented great difficulties, certain words being specially hard to memorize, and the spelling of "avulsion" is more often than not spelt with an "e" by most eminent physicians and surgeons, to give only an instance noticed by myself. The extremely lengthy and complicated names in use make confusion all the more likely. I would suggest simplifying these before criticizing the overworked medical man. With regard to the last quotation in the letter: "This same patient above was also notified by another doctor as suffering from 'P.T.,' whatever that may be," I would venture to point out that your correspondent will find the letters stand for "Pulmonary Tuberculosis."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 60.